

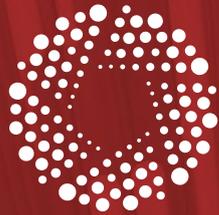
Combined Heat and Power in a nutshell

Secure your energy source

Product series
September 2017



The Power of Cogeneration



Powering Resilience

ENER-G Combined Heat and Power (CHP) will help you take control of your energy, lowering the risk of business disruption and ensuring continuity of your operations



Powering Performance

ENER-G Combined Heat and Power (CHP) will help you improve operational efficiency and lower costs



Powering the Future

ENER-G CHP can help power your business agility and drive sustainable growth – keeping you ahead of the competition

The new energy dynamic

The energy landscape is changing rapidly. Increased demand, escalating costs and unremitting pressure on the grid mean that businesses need to start looking for an alternative energy source – one that gives you the power to control your own energy.

Ideally, that source would offer you a secure, flexible energy supply, be cost-effective and easy to manage, and give real-time knowledge and insight into your individual usage. And with increasingly stringent emissions targets, you need a solution that can help you meet compliance regulations too.

What is ENER-G CHP?

ENER-G CHP is a well-established technology, but one that is constantly evolving to keep it amongst the best energy-saving solutions available. It works by converting a natural gas into both electricity and heat in a single process, right on your own site. It's one of the most efficient sources of energy production – improving the resilience of your on-site supply, reducing your costs and helping you meet your CO2 emissions targets.

The benefits to your business

A secure and stable supply

Your business can't operate without power. ENER-G CHP gives you a reliable energy supply that can keep your business running, regardless of what's happening outside the gates. It can also help you keep energy levels constant – giving you a steady and stable supply that can keep your business operating smoothly.

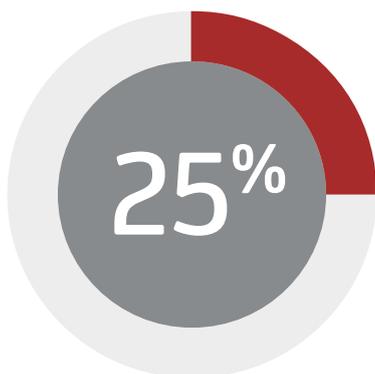
Reduced running costs

ENER-G CHP can cut your site's energy costs by up to 25%, enabling you to divert the savings to other areas of your business. We offer a variety of finance options, including zero capital outlay, so you control the cost of installation. And with payback in 3–5 years and an equipment lifespan of up to 15 years, the savings keep coming long after the technology has paid for itself.

Stronger compliance

ENER-G CHP can help you reduce your energy consumption and emissions, supporting your compliance efforts. It can also help you gain valuable government incentives.

ENER-G CHP is a highly efficient energy source, cutting your site's energy costs by up to



Is ENER-G CHP right for your business?

ENER-G CHP is ideal for any business looking to reduce energy usage, lower carbon emissions and optimise their energy consumption.

But it's particularly effective for businesses who:

Are operational for a minimum of 15 hrs/day

Need power, as well as heat or cooling



Why Centrica Business Solutions?

Our vision is to help you turn energy from a cost and potential business risk into a source of sustainable competitive advantage.

We work with you in partnership from the beginning, helping you find the best energy solution for your site. ENER-G CHP could become part of a total solution to maximise your energy savings and efficiency – and even help you generate revenue from your energy usage.

We can monitor and maintain your technologies throughout their life cycle, to make sure you always get the maximum benefit. Our flexible payment options also mean you can have a solution that suits your company's finances.

We remain at the forefront of changing how the world uses energy, how it impacts the energy market and what it means for your business. No one knows energy better than we do, so you have the reassurance of our extensive industry experience, knowledge and a world-class operation.

Want to know more?

ENER-G CHP is generating new opportunities across all types of industry. Find out how we can help you power new levels of performance today.

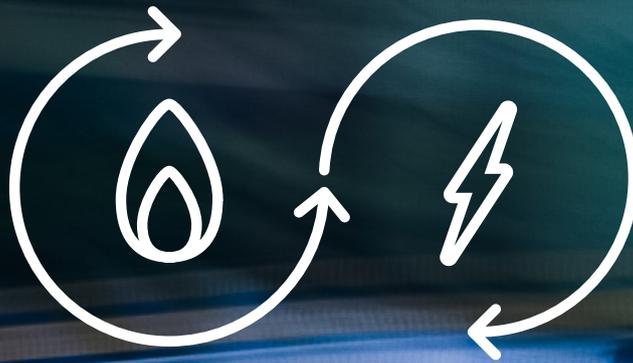
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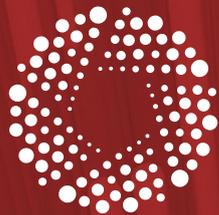
The journey to Combined Heat and Power

Taking control of your energy

Product series
September 2017



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Understanding energy options

Global energy consumption is increasing fast – it's expected to rise 25% by 2040.¹ The demand for electricity will be even higher, up 65% in the same period.² Add increasing instability in the grid due to intermittent renewables, rising fuel costs and strict emissions targets into the mix and the future of traditional energy supplies looks anything but secure.

If you're to prevent potential impact on your operational efficiency, it's time to start looking at alternative energy sources.

You need a supply that will improve your on-site resilience, reduce costs and help meet your CO₂ emissions. Something that isn't going to eat up your entire energy budget in set up costs alone.

An ideal solution could be an ENER-G CHP system from Centrica.

1. US Energy Information Administration

2. US Energy Information Administration

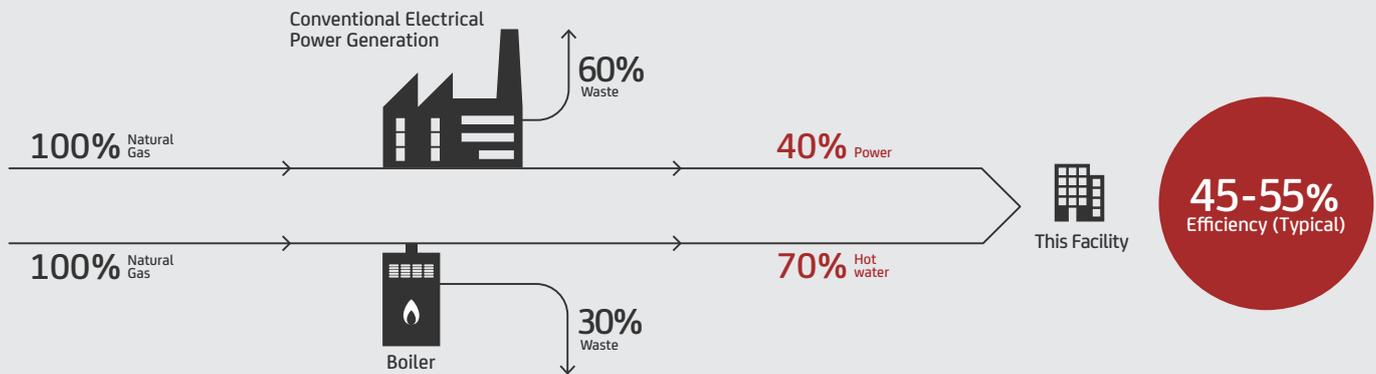


How ENER-G CHP works

An engine, normally fuelled by gas, is linked to a generator to provide electricity. Heat is recovered from the exhaust, jacket and water and oil cooling circuit simultaneously. Centrica's ENER-G CHP systems can deliver an improved efficiency of up to 25% compared to the separate systems it replaces:³

3. US Energy Information Administration

Typical case



Cogeneration



What can ENER-G CHP do for your operational efficiency?

ENER-G CHP is designed to give you the power to control your energy, including improved reliability of supply, reduced costs and a lower carbon footprint.



Increased resilience

- Reduces your dependency on the grid – giving you a reliable energy source
- Gives you flexibility and control over your energy
- Can be used to provide electricity if the grid supply fails
- Offers a cost-efficient heat supply



Reduced running costs

- Cuts your site's energy costs, enabling you to divert your energy budget elsewhere
- Stabilises energy costs, allowing you to forecast more effectively



Lower CO₂ emissions

- ENER-G CHP can help you reduce your energy consumption and emissions – supporting your compliance efforts and even unlocking access to certain government incentives



ENER-G CHP in action

Five-star savings at a luxury hotel spa

The hotel spa had a number of facilities that relied on a constant energy source, including a rooftop hydro-pool and a 19-metre infinity pool. With their ageing heat and power system becoming difficult to maintain, they needed a reliable, energy-efficient replacement.

The ENER-G's CHP units were ideal as they could generate sufficient electricity, then recover the heat created during the process to supply heating and hot water for the building. To maximise savings, we fitted two CHP units – one for the hotel, and one for the spa.

The results

ENER-G CHP technology has dramatically reduced the energy costs for the hotel and their on-site health spa, with carbon output cut by over 800 tonnes a year.

The savings were immediate, and both units are set to achieve payback within three years.



ENER-G CHP in five simple steps

1. Assess feasibility

There are two reasons for installing ENER-G CHP – performance and resilience. The feasibility for improving both is determined through a scoping study, taking into account your site's energy demands, it's infrastructure and any specific issues. This information can help you make a business case for the investment.

2. Choose the right ENER-G CHP for your site

Once we've established the energy requirements for your site, we can help you select an appropriately sized ENER-G CHP unit that's fit for purpose, ensuring maximum operational efficiency and longevity.

3. Finance your ENER-G CHP

There are several different ways to finance ENER-G CHP:

Discount Energy Purchase (DEP)

- Funds all or a proportion of the overall costs, you can choose what you want to pay
- Payment via a fixed p/kWh rate for an agreed period
- All ongoing maintenance costs are included in the tariff

Energy Savings Agreement (ESA)

- Allows the purchase of electricity and heat from the ENER-G CHP unit at a fixed cost
- Capital costs are funded by Centrica, limiting your capital outlay and risk
- Savings are immediate and guaranteed with ongoing maintenance costs included

Capital Purchase

- Complete turnkey solution at a fixed price
- Allows you to claim Investment Tax Credits towards the cost
- Optional service package to operate and maintain the system makes management hassle-free and allows for long term returns

4. Install your ENER-G CHP

Our experienced in-house team ensure that the CHP system is designed, manufactured and tested to the highest standards at our state of the art manufacturing facilities. Once all the checks have been completed, our specialist team ensure the system is installed on-site, causing minimal interruptions and ensuring your equipment is up and running and generating savings in the minimum possible time. We can even construct the system on site in case of restricted space or access.

5. Ongoing operation and maintenance

Our remote monitoring system actively checks over 200 data points on the ENER-G CHP equipment to anticipate any performance issues before they happen. This cloud-based monitoring system ensures optimum performance and maximises the lifespan of your ENER-G CHP unit and our expert engineering team also offer an immediate response.

Want to know more?

ENER-G CHP is generating new opportunities across all types of industry. Find out how we can help you power new levels of performance today.

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Combined Heat and Power in action

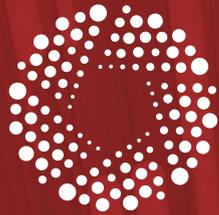
Have power over your energy supply

Product series
September 2017



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The Power of Cogeneration



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Powering the Future

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Power in your hands

What if you could generate your own energy, capture the generated heat and use it to offset your energy bills – and your carbon emissions?

£500k

Liverpool Museum does – reducing CO₂ emissions by 884 tonnes a year and saving £500,000 in energy costs.

390T

Newcastle United Football Club does – reducing CO₂ emissions by 390 tonnes a year without capital outlay.

92%

Royal Stoke University Hospital does – reducing CO₂ emissions by 2,792 tonnes a year with 92% guaranteed operational availability.

How do they do it?
With ENER-G Combined Heat and Power (CHP) from Centrica.

What is ENER-G CHP?

ENER-G CHP is a sustainable, efficient, cost-effective, low carbon and, above all, resilient source of energy. It converts a single fuel into power and heat simultaneously, right on your own site. It is ideal for businesses who want to reduce energy costs and carbon emissions – whether you're a small to medium enterprise or a large-scale industrial user. And it's a proven technology, recognised globally as a viable alternative to traditional centralised generation.

1

Secure your energy supply

2

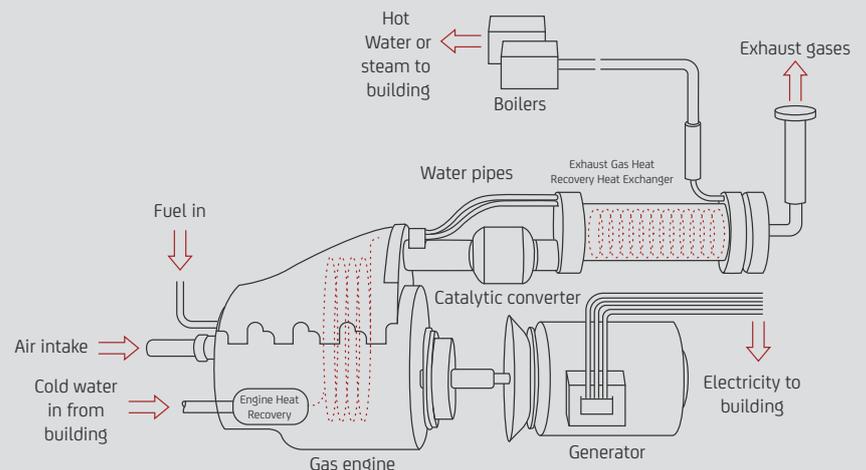
Reduce your running costs

3

Lower your CO₂ emissions

How ENER-G CHP works

ENER-G CHP is an engine, normally fuelled by low-priced and widely available natural gas, that is linked to a generator to produce electricity. CHP maximises the fuel, converting it to electricity at around 33% efficiency and heat at 52% efficiency. The heat is recovered from the exhaust, jacket, water and oil cooling circuits and can be used to heat your facilities.



Is CHP right for you?

CHP has been successfully used in many sectors including:

- Manufacturing and production facilities
- Leisure centres and hotels
- Supermarkets, warehouses and distribution centres
- Hospitals, universities and schools
- Commercial real estate

Determining whether ENER-G CHP could be right for you is very simple. If you can answer yes to any of the questions below, then ENER-G CHP is worth exploring further for your business.

- 1 Do you use heat and power?**
- 2 Is the cost of your energy rising?**
- 3 Do you want to reduce your carbon emissions?**
- 4 Are you looking for a stable on-site energy resource?**



The journey to energy efficiency

We start the ENER-G CHP journey by carrying out a site assessment to determine feasibility and help you decide whether it really is right for you. There are generally 3 stages:



Data collection

We collect data on the utility consumption of your site, along with site conditions like energy distribution and boiler efficiency.



Initial feasibility study

We conduct a simple feasibility evaluation, using the data on energy consumption from your site. From this analysis, we calculate the size of the ENER-G CHP unit needed and how much energy it will save.



On-site review

We conduct a site review to determine the best installation options and then talk you through the various finance packages available, from zero capital outlay to a complete turnkey solution.



ENER-G CHP in action

Liverpool Museum

Exhibiting model energy savings and emissions reduction

State-of-the-art building

The £72 million Museum of Liverpool needed to reduce their carbon emissions and costs through better energy management and optimisation. To do this they wanted to install an ENER-G CHP system at its Mann Island site, part of the Pier Head at the centre of the World Heritage site on Liverpool's iconic waterfront.

State-of-the-art solution

We designed and manufactured two 385kWe bio-diesel CHP units, two 768kWe natural gas CHP systems and installed two 850kWe boilers, a 1000kWe absorption chiller and a 998kWe compression chiller – a complex combination, but one that would be able to serve the museum's total energy needs.

This trigeneration project creates electricity and then recovers the majority of heat created to provide heat and hot water for the museum in winter, and air conditioning and chilled water in the summer.





ENER-G CHP in action

Newcastle United Fielding a premier league carbon footprint

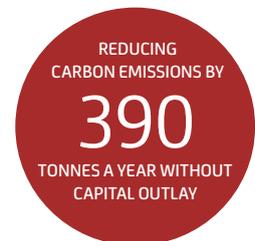
Better performance

The club were already offsetting more carbon than they emitted through boiler optimisation, burner management, lighting upgrades, smart building and energy monitoring. But to take their carbon saving to the next level, they needed a permanent, cost-effective solution.

Due to the space constraints of the stadium, we delivered their new CHP system in parts and rebuilt it in situ.

Right result

The ENER-G CHP unit is now helping the club reduce their CO₂ emissions by an additional 390 tonnes per year. And thanks to the cloud-based monitoring system which provides a two-way communication channel between the unit and service centre, we can monitor the energy levels in real time to make sure the club are always getting the best performance.





ENER-G CHP in action

Royal Stoke University Hospital Cutting costs and emissions with surgical precision

A major operation

As Europe's biggest employer, the NHS contributes about 8% of England's total CO₂ emissions and the government's Carbon Reduction Strategy has committed them to reducing emissions by 60% by 2050. So there's a compelling need to implement carbon reduction technologies.

Royal Stoke University Hospital (RSUH) wanted to lower their emissions and cut energy costs at their main site, which provides acute services for about 500,000 people. They received a share of the £50 million fund to cut NHS energy consumption to install a new ENER-G CHP unit on the site.

Ongoing treatment

The unit will reduce the hospital's carbon footprint by 95 tonnes a year – almost 8% of the Trust's entire current output. RSUH have also taken out a fully comprehensive operations and maintenance package, which includes 24-hour remote monitoring, a dedicated site engineer and all-inclusive parts and labour from Centrica.



Why ENER-G CHP from Centrica

We work with you in partnership from the beginning, helping you find the best ENER-G CHP solution for your site – so you benefit from maximum savings and efficiencies.

We can monitor and maintain your unit throughout its life, to make sure you continue to receive the full benefit.

Our flexible payment options mean you can have a solution installed with a capital outlay or payment method that suits your company's finances. And you have the reassurance of Centrica's vast industry experience and knowledge of the energy industry now – and for the future.

Want to know more?

ENER-G CHP is generating new opportunities across all types of industry. Find out how we can help you power new levels of performance today.

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