ENER-G
Combined Heat and Power

Frequently asked questions

What are the benefits of CHP for business?

Combined Heat and Power (CHP) is a well-proven technology, recognised worldwide as a cleaner alternative to traditional centralised generation. Its long-term future in the global energy markets is secured by CHP's ability to provide a multitude of financial, operational, environmental and legislative benefits from a single unit of fuel.

CHP provides the simultaneous generation of electricity and useful heat and is typically 85% efficient for on-site energy consumption. It is around twice as efficient as conventional power generation where the generated heat is wasted and further losses of approximately 7% occur in transporting the electricity from remote power stations to end users.

CHP achieves cost savings of up to 40% over electricity sourced from the grid and heat generated by on-site boilers. As a carbon-cutting technology with a formidable track record, CHP is a cost effective tool for improving cost and environmental performance, while improving long-term energy security.

Financial Benefits:

- Reduced primary energy costs
- Zero capital outlay options available
- Stabilised electricity costs over a fixed period
- Reduced investment surrounding plant e.g. boilers
- Eligible for Enhanced Capital Allowances
- Potential ROCs eligibility (Biogas, Liquid Biofuel)
- Potential benefits from Renewable Heat Incentives
- Sufficient savings to fund energy efficient measures
- Potential for Renewable Heat Incentive (RHI) funding

Operational Benefits:

- Reduced base load electricity supply
- Additional security of supply
- Increased diversity on heating and hot water
- Steam raising capabilities on larger units
- Choice of multiple fuels
- Cooling provision using absorption chillers

Do you think that CHP has clear and quantifiable environmental credentials?

Systems powered by natural gas or other fossil fuels will reduce carbon emissions by approximately 20%, while the carbon reduction benefits are even better for those systems primed by biofuels or biogas.

Environmental Benefits:

- Reduced primary energy use
- Reduced CO_2 emissions
- Helps with carbon legislation compliance
- Reduced transmission losses from the grid
- Lower SO_x emissions with the use of natural gas as a fuel

Legislative Benefits:

- Helps with Part L compliance
- Helps meet the CRC Energy Efficiency Scheme (CRCEES) targets
- Helps reduce carbon footprint
- Avoids Climate Change levy

ENER-G Combined Power

Should businesses develop their own bespoke CHP systems instead of buying packaging systems to meet their environmental target?

There are a wide variety of systems on the market. We supply 30 different packaged systems – from 4kWe to 2.14 MWe, with the ability to provide multi-system solutions up to circa. 10MWe. The range has been designed and developed over 25 years to tailor packages to suit most customer's needs.

If businesses have specific requirements, there may be a need to develop a bespoke CHP system. We have teams of engineers who can specifically engineer these for the customer.

What is your key advice to businesses that are looking at CHP for the first time?

Cogeneration is suitable for many applications in different situations and should be considered when looking to increase energy efficiency while reducing energy costs.

CHP systems can be implemented in new buildings, when redeveloping an existing site or when replacing ageing boiler plants. Additionally, CHP can help to support your company's green image, improve corporate social responsibility and help you to manage existing power demands.

On-site generation can provide some cost certainty and protection from volatile market rates. If you have sufficient heat or cooling demand, particularly if that demand is for extended periods, combined heat and power can be an attractive option.

Look for opportunities to benefit from shared savings agreements, where you can avoid upfront capital costs. The Discount Energy Purchase meets the capital scheme, ENER-G meets the capital, installation and operational cost, with payment recovered through the customer purchasing the generated heat and electricity at a guaranteed discounted rate.

Can businesses currently gain an acceptable payback period on CHP technology?

Payback can vary depending on the size and the scale of the project, as well as the rates that the business is paying for gas and electricity, but typical payback is between 3 and 5 years. Most CHPs have a minimum product lifecycle of 10-15 years.

How can CHP be combined with other technologies?

The fusion of CHP with other technologies can work effectively. Biomass boilers combined with gas CHP are a key example.

Where there is sufficient load at the site and at the appropriate temperatures to support the installation of a CHP system and ground source heat pumps, then there is the possibility of delivering an ultra-low carbon solution through the application of the combination of these two innovative technologies. Although ground source heat pumps can deliver extremely high coefficients of performance, grid supplied electricity is required to power the refrigeration compressor. With the presence of a CHP system at the same site, the electricity generated by the CHP unit can be utilised to power the heat pump. The CHP system is effectively decarbonising the operation of the heat pump and, in so doing, improving the carbon reduction credentials of an already renewable solution.

Efficient lighting schemes, especially refurbishments and retrofits are an effective combination with CHP. These can provide further cost, carbon and energy savings. It is ideal to work out the benefits of a new lighting scheme before sizing a CHP system as this can affect the level of demand, so linking these technologies has multiple benefits.

Additionally, adding a Building Energy Management System (BEMS) to a project can provide additional savings and allow you to control all your technologies, including a CHP, from one place. This can allow you to optimise your energy usage and provide further savings.

Are there any current examples of CHP installations in businesses that illustrate how the technology could be used by other enterprises?

ENER-G CHP systems are installed in hospitals, museums, horticulture, hotels, district heating schemes, leisure centres, supermarkets, factories, and even in the Royal Palaces of Buckingham Palace and Windsor Castle.

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