

Case Study: Loughborough University



State-of-the-art University leads the way in low carbon energy generation with ENER-G

Loughborough University, in Leicestershire, East Midlands was established in 1909 and currently has over 20,000 students and staff. The university campus is spread over 433 acres.

Loughborough University is leading the way in low carbon power generation within the higher education sector by generating approximately half of its annual electricity requirement from natural gas CHP.

Since 2001 the University has been purchasing 100 percent of its power from renewable sources and was the first in the country to do so. Part of this initiative was an advanced energy centre incorporating 3 combined heat and power (CHP) units providing heating, cooling and electricity to the site.

ENER-G has previously installed a CHP to power the business park adjacent to the university and sharing some power. Following the success of the university business park installation, ENER-G was appointed to supply a 1.6 MW_e CHP system for the main campus on a capital purchase basis.

The installation is located in the centre of the university campus and operates during the day - supplying heat and electricity to the whole of the university site. Keeping an eye on costs and time, ENER-G supplied a containerised unit, rather than building an energy centre, with site installation completed in six weeks. To date the unit has saved 168 tonnes of carbon.

ENER-G also provides operation and maintenance of the system. As part of the package, the university has 24 hour support from a team of ENER-G engineers and a stock of spares are kept on site to ensure that over 95% availability is maintained.

The CHP system generates electricity and recovers the majority of the heat created in the process. In conventional power stations this heat is simply wasted into the atmosphere through power station cooling towers, much energy is also lost along the many miles of electrical distribution cables needed to bring the power to site.

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By using CHP to generate electricity on site the heat is used to provide heating and hot water providing increased comfort for the university's staff and students during the winter months.

CHP Maintenance

CHP systems require regular, periodic maintenance and inspection. Every unit requires a service after a predetermined amount of running hours. Units typically require between 6 to 10 services a year dependent upon operation. The service procedures vary throughout the year from replacing and recalibrating components to oil and filter changes. CHP units use gas as a fuel and are therefore subject to the Gas Safe Regulations. To ensure maximum savings and compliance with regulation.

An integral part of our CHP units is the on-board computer. The computer's function is to provide optimised safe and efficient operation of the CHP unit. The computer also provides a two-way communication channel between your CHP unit and the ENER-G service centre, allowing live system operational monitoring and full historic data retrieval.

In addition, in the event of system faults, ENER-G service centre can receive an SOS signal from the unit, run remote diagnosis, rectify problems and schedule an engineer if necessary.

Remote monitoring

Remote monitoring reduces operational downtime and maintains client savings whilst generating monthly performance reports and offering customers the opportunity to log on and monitor operation and savings.



1.6 MW CHP at Loughborough University from ENER-G

About ENER-G

ENER-G's cogeneration experience in the market to 1984 when we began designing, financing, manufacturing, installing and maintaining cogeneration systems. Our systems can be powered by a variety of different fuels including; natural gas, biogas or propane.

ENER-G develops, delivers and finances sustainable energy solutions and technologies on a business to business basis worldwide.

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The benefits of CHP in the education sector:

- Offers financial savings over conventional energy supply
- Avoids Climate Change Levy
- Primary energy savings deliver lower energy bills
- Higher efficiency offers reduced greenhouse gas emissions offsetting the impact of the Carbon Reduction Commitment
- Greater security of supply and plentiful hot water
- Flexible procurement options
- Zero CAPEX required
- VAT savings
- Possible grant funding

