

A VISION OF ENERGY EFFICIENCY

Honeywell helps Darlington College improve carbon footprint, building systems and energy savings.

Case Study

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DARLINGTON COLLEGE

"This is an amazing opportunity for the College to lead the way in Darlington with renewable green energy and the production of our own heat and power. This has been made possible with ERDF funding. The College is now building its own Energy Centre, supported by Honeywell Building Solution."

Honeywell

With over 450 staff members, 1,600 full time students and 3,500 part time students, Darlington College is a further education facility in Tees Valley, England. For two years in a row, the College placed number one in Tees Valley and sixth nationally for student achievement rates. Upgrading building systems became inevitable when Darlington College's energy vision aligned with local efforts to turn Tees Valley into a high-value, low-carbon economy. College officials turned to Honeywell to help improve their building and deliver energy-efficient results.

THE NEEDS

- Reduce the facility's carbon footprint
- Upgrade building infrastructure and systems
- Achieve results that increase awareness on local energy efficiency investments
- Transform into a 'tech-savvy' college that appeals to students' tech expectations
- Gain visibility over existing equipment for the in-house maintenance team and third-party contractors
- Improve on-campus student and teacher experience



THE SOLUTION

Darlington College aspires to become a flagship site for energy conservation within the local area, aligning with the Strategic Economic Plan (SEP) for Tees Valley 2016. To support growth and development in the local community, project officials wanted to create a fully operational energy center. This would enable the College to offer a heating solution to a number of neighboring buildings.

With a failing, aging infrastructure in need of restoration and upgrade, College officials decided to invest in a new, integrated Building Management System (BMS). This brings visibility over other on-site systems such as Fire and CCTV. The Honeywell team was in charge of retrofit upgrades, replacing the existing gas fired heating boilers, domestic hot water heaters, circulation pumps, and deploying a new Combined Heat and Power (CHP) system.

Besides the mechanical plant works, the Honeywell team deployed solar PVs systems coupled to battery storage units. In addition to the combined renewable energy system, the BMS was replaced and now allows complete control and visibility over all plant items – greatly reducing running costs and carbon emissions.

Honeywell delivered a full spectrum of modern building solutions that helped Darlington College improve infrastructure, carbon footprint, and energy savings.

To achieve these results, the most recent version of the Command and Control Suite (CCS) was deployed. Thanks to its touch-optimized, integrated user interface, the CCS orchestrates systems, teams, devices, and more -- providing effective enterprise management in any situation.





THE BENEFITS

- Significantly lower carbon footprint
- Modern BMS with integrated capabilities
- Technology upgrades that improve both student and teacher experience on-campus
- Full visibility over existing equipment for in-house and third-party maintenance teams
- Educated existing and prospective students on energy and operational efficiency

ENERGY AND HEATING HIGHLIGHTS

Using CHP and low carbon energy generation sources offers a number of benefits compared to conventional electricity and thermal energy production, including:

Efficient generation

By using heat recovery technology to capture waste heat associated with electricity production, CHP systems may achieve total system efficiencies of up to 70% to 80% , compared to approx. 50% for conventional technologies. CHP systems use natural gas, which is cheaper than purchased electricity. By producing on-site electricity and reducing import, CHP also avoids transmission and distribution (T&D) losses and further reduces central generation fuel consumption.

Environment-friendly approach

By capturing and using heat that would otherwise be wasted from the production of electricity, CHP systems require less fuel to produce the same amount of energy. T&D losses are avoided and less fuel is burned to produce each unit of energy output in CHP. This delivers renewable energy and reduces emissions of greenhouse gases, such as carbon dioxide (CO₂), as well as other air pollutants like nitrogen oxides (NO_x) and sulfur dioxide (SO₂).

Cost-effective results

CHP saves the College considerable money on their energy bills due to its high overall efficiency and ability to provide a hedge against potentially higher electricity costs. Because less electricity is purchased from the grid, the College has less exposure to rate increases.

Reliable service

Electricity service issues represents a quantifiable business, safety, and health risk for the College. CHP and solar PV are on-site generation resources linked to the energy storage. In the event of a disaster or grid disruption, these resources support essential operations and continue to provide reliable electricity.

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