



Anglia Ruskin University

Case study

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About

Anglia Ruskin University is one of the largest universities in the East of England with around 30,000 students. In 2010 the University proposed new plans to build a new data centre as part of a 5 year IT strategy that would increase their outstanding reputation for innovation and achievement.

Location: Cambridgeshire

Project Value: £700,000

Site Size: 90m²

Duration: 3 months

The brief

Sudlows were selected as the main contractor for the exciting project initially aimed at developing a highly available, energy efficient and secure communications facility at the Cambridge campus which would integrate all IT systems.

The end design was expected to be mindful of present and emerging UK Government policies covering carbon reduction, energy usage and environmental sustainability; something Sudlows have

plenty of experience in providing as active members of The Green Grid consortium and Endorsers of the EU Code of Conduct for Data Centres.

The project

From the moment Sudlows won the contract, we held detailed discussions and site inspections to look into the most suitable power, cooling and environmental monitoring preferences. This crucial phase helps build an accurate picture of how our clients want to progress.

With a prominent focus placed upon environmental concerns, the University required a sustainable environment that would complement their Environmental Management System (EMS).

The University is also ISO 14001 certified for both their Chelmsford and Cambridge campuses, therefore the design for the new data centre needed to take into account the University's key aim to operate at optimal efficiency.



The project (cont...)

We know that a modular design approach is attractive to our clients since it is the perfect way of combining the most intelligent technologies capable of achieving a high Tier rating and resilience for the future.

Our skilled engineers installed a custom-build data centre incorporating 3 x 100kVA N+1 UPS system integrating a 10 year lifespan. This online static UPS module has a full load capacity of 100kVA and an impressive 0.9 power factor. By installing a Low Voltage electric switchboard panel, the flow of very large currents was permitted between the UPS, generator and racks. The flexibility of these dominant systems means that they can be easily modified at a later stage with minimum disruption.

Given that data centres are intensely powered environments that produce masses of heat, specialist cooling technologies were installed to chill components and crucially prevent any system downtime.

The predicament presented by most cooling technologies is the high energy consumption involved. Data centre cooling is the next largest consumer of energy to IT servers, generally because compression uses most energy in the heat conversion process.

For this reason Sudlows selected a Free Cooling CRAC unit with outdoor dry cooling chillers for high cooling efficiency and cost effectiveness.

Free Cooling is a process that uses ambient outdoor air temperatures as a facilitator in cooling. The two processes work simultaneously to quickly cool air from the data centre using the ambient air temperatures of the surrounding location. This significantly lowers Power Usage Effectiveness (PUE).

A long lasting LED panel lighting system was installed because it has a large average lamp life of 50,000 hours, around 5 times that of standard lighting.



Little of the LED's energy is emitted as heat meaning the bulbs illuminate at a cool temperature, requiring very low, if not any, maintenance after our installation.

Specialist Projects Director at Sudlows, Andy Hirst, who heads the data centre team, commented on the importance of a range of modular components;

"Modularity in the data centre is creatively responsive to any potential growth in the data centre by integrating a range of scalable 'plug and play' products for flexibility. This is not a new concept for Sudlows, it is our standard since it allows us to achieve tailored specifications that consider our client's future data centre demand.

"For this project we produced an innovative, yet completely realistic design taking into account each key aim from the very start".

Derek Bowles, Senior Project Manager at Anglia Ruskin University said:

"One of our values is 'concern for the environment'. This new facility will allow us to achieve reductions in energy consumption, minimise our long term carbon emissions and our carbon footprint, whilst improving sustainability - enhancing our green and social responsibility policies and setting us on track to exceed our targets.

"It is a tribute to Sudlows' team that the project was delivered within a highly constrained space without impacting operation, and was executed in a manner that maintained the goodwill of staff, students and residents that we strive to build."

Gregor Waddell Assistant Director at Anglia Ruskin University, added that;

"Sudlows presented a design that provides our University with a cost effective and innovative solution. Our commitment to sustainability objectives is demonstrated by the new data centre's target PUE of between 1.4 and 1.2. This is a substantial improvement to the power efficiency in our old data centre."

Data centre components

3x 100kVA N+1 UPS

550KVA generator set

4000 litre bulk tank

Bespoke Low Voltage switchboard panel

LED panel lighting

Smartcool Free Cooling CRAC unit with outdoor dry coolers

Cold Aisle Containment

Fire detection and suppression systems

Optical Fibre and Cat 6A systems for high bandwidth applications

The conclusion

Sudlows have proudly engineered a high power data centre that achieves an annualised PUE of 1.4 and an even more desirable 1.2 rating in the colder months of the year. This could only be achieved by carefully selecting the most suitable technologies and is great news for a University of its size.