

Case study

Schneider Electric provides electrical infrastructure for Europe's largest data centre

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Independent data centre operator Next Generation Data has created Europe's largest data centre in a former semiconductor plant in Newport, South Wales. With the completion of an extensive upgrade and conversion programme to turn the building into NGD Europe, a Tier 3 data centre, the company turned to Schneider Electric as its electrical distribution partner.

> Background:

Next Generation Data Ltd was formed to help meet the growing demand for data centres. The company had decided to locate a major project outside of London and the South East in an environment that would provide a combination of cost-effectiveness and security. The former semi-conductor plant in Newport provided the ideal location: a large building, away from built-up urban areas in an isolated position. An additional advantage of the location was that it is directly connected to the Super Grid via a substation less than 1km away. This provides a large 180MVA of resilient power supply.



Having spent 18 months upgrading and converting the exterior of the building into a tier 3 data centre including bomb proof glass and triple skinned walls, Next Generation Data knew they needed an equally impressive blue chip interior fit out. For this reason, the company appointed Schneider Electric as its electrical distribution partner with its many years of experience of manufacturing and a comprehensive range of products, coupled with an advanced level of technical expertise.

> Solution:

Schneider Electric provided a wide range of solutions to meet the needs of the data centre.

As with any large electrical installation, LV and MV equipment was required. A packaged substation was installed at the site, to provide power to the data centre. These were built with integrated power distribution units (PDU). The Schneider Electric PDU has the capability to remotely monitor every electrical circuit in the network, so if a fault ever occurs it can be picked up immediately and counter-measures can be implemented.

Galaxy UPS devices from APC by Schneider Electric were specified and

installed to act as an interim measure if there is ever an interruption to the supply of power at the source. These devices offer eight minutes of continuous power if the mains supply fails. In the event of a failure, the system automatically switches on a series of diesel generators within seconds to continue powering the data centre.

Cooling is perhaps the most critical system within a data centre. The sheer amount of servers within the space generates a vast amount of heat, and unless the temperature is regulated and kept cool, the servers are likely to overheat and malfunction. Schneider Electric opted to install a cooling system from its strategic partner, Stulz, as the products best suited the need of the project.



Cooling is the most energy intensive operation in a data centre. Making steps towards energy efficiency is important to Next Generation Data, so Schneider Electric knew that traditional cooling systems had to be tailored to help meet this objective. The key was to make the CRAC system as efficient as possible. To do this, the specification team developed a new solution, where 56 remote temperature sensors are utilised around each hall, and linked to the CRAC system through infrared monitors. These sensors identify hot and cold spots, and where the temperature is naturally cooler, the CRAC system automatically reduces its focus on that particular area and concentrates on the sections that are warmer.

Schneider Electric recognised that in order to meet Next Generation's exacting demands for high specification technology, they needed to introduce a revolutionary management system. This new solution was uniquely designed for the Next Generation project. Data centres have historically used separate management systems to control building operations such as heating and lighting, alongside individual systems for the UPS and generators. The energy management specialists decided to break with tradition and implement an industry first – bringing together the building management system, the electronic management system, the PDUs and SCADA.

This unique system provides Next Generation Data with the power to closely monitor energy usage, highlighting any areas of concern where consumption is running at unexpected levels. This can then be addressed quickly and efficiently, ensuring a better service for customers of the data centre.

The advanced management system also provides a way for Next Generation to monitor the data centre without breaching confidentiality agreements. Once customers have signed contracts for the halls, no-one is allowed access. Schneider Electric installed its SCADA system, through which a central server provides a virtual window into the data centre processes, via a number of plasma screens. Authorised controllers can check on any data at any time, even down to each individual circuit within the building, ensuring all processes are running smoothly and any issues are quickly identified and dealt with.

NGD Europe also benefits from a remote monitoring web gate system. This allows users to connect to the data centre using the internet and an IP address. This effectively means the data centre can be monitored and controlled not only locally, but from anywhere in the world, offering 24/7 control and visibility.

To ensure peace of mind, Next Generation Data has signed a five year 'Prevent' contract with Schneider Electric, offering 24/7 support and access to an engineer. 'Prevent' contracts have been developed for electrical distribution systems, offering a range of features such as a non-intrusive maintenance service, allowing switchgear to be checked while it is still operating, and around the clock access to spare parts. Assets will be proactively maintained through random spot-checks, and any issues can be identified and fixed, quickly and effectively.

> **Benefits:**

Having one supplier for all the equipment helped the work run under a strict deadline as the need to coordinate a number of companies was eliminated. In addition, Schneider Electric offered the benefit of ongoing maintenance and repair when the project was complete – which is a crucial service. Appointing one company that could oversee the project from the very start to the very end and into the future was the ideal solution for Next Generation Data.

A packaged substation offers a number of benefits to the customer, including the ability to build the equipment to bespoke requirements. In addition, specification is made easier and the substation could be provided with minimum time and costs, and there is only one point of contact for manufacturing, delivering and commissioning. Logistic costs are also decreased as the substation can be delivered in one single unit, as opposed to a number of products from various sources, which will also need assembling on site.

Schneider Electric's Galaxy UPS offers proven technology. It is well utilised in data centres worldwide which enables Next Generation Data to offer customers the reassurance of having reliable and trusted UPS devices installed to offer emergency power should there be a need for it.

Simon Taylor, co-founder and chairman of Next Generation Data concludes: "It has been our policy to engage blue chip suppliers throughout the build and fit-out of NGD Europe and clearly Schneider Electric is the best in the business for critical power solution. We are totally confident their solutions will ensure we meet and exceed the requirements of our major customer organisations that are depending on NGD Europe for a highly resilient, secure and environmentally-friendly state-of-the-art infrastructure."

**For further information please contact us on 0870 608 8 608
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