



Technology leadership & reduced costs as part of global consolidation

Projected annual power consumption savings of 4.1 million kW-h and a reduction in emissions of 2.2 million kg per year

(based on full IT deployment & compared to previous facility)

overview

- ➔ Keysource provided an ultra efficient, scalable, complete replacement data centre for the UK site of a leading global engineering, construction and services company. This has cut running costs, demonstrated technological and environmental leadership and created a differentiator for its downstream business.

the challenge

- ➔ The client uses technology leadership as a primary selling point for its services. It also expects to use technology in its own operations to cut costs for its customers. The replacement data centre it commissioned from Keysource had to fit this requirement.

The company undertook a review of its existing IT infrastructure, with a view to consolidating its global data centres from four facilities to just two. As part of this process, the company decided to build a replacement ultra-efficient data centre in the UK that would become a primary facility alongside another data centre located in the United States.

Following a competitive tender process, Keysource was appointed to act as principal contractor for the design and build of the new data centre. The facility has to be operational for at least 10 years – so Keysource had to develop a highly efficient data centre that would reduce the total cost of ownership continuously over its lifecycle.

data centre: · consult · design · deliver · manage

the solution



As a result, Keysource has developed a highly efficient complete data centre with a predicted design Power Usage Effectiveness (PUE) measurement of just 1.3. The Data Centre Infrastructure Efficiency (DCiE) measurement is 77 per cent. In other words 77 per cent of total power being consumed by the facility is powering the IT equipment, compared to the previous facility which was measured to have a PUE of 2.24: in effect a DCiE of only 45%. The huge improvement represents a projected annual saving in power consumption of 4.1 million kW-h and a reduction in emissions of 2.2 million kg (based on full IT deployment of 550kVA). In fact, from day one with an initial IT deployment of 220 kW, the reduction equates to 1.8 million kW-h and 960,000 kg of CO2 emissions.

Central to the achievement is a bespoke cooling solution incorporating key elements of Keysource's award-winning Ecofris design philosophy. This included two internal 300 kW air recirculation units, which incorporate a flooded airflow topology and required complete air containment and separation of the cold and hot aisles within the data centre. Meanwhile, two 300 kW cooling modules were sited externally to use the ambient air to cool the water circuit maximising the use of 'free cooling'.

This efficient cooling solution now provides free cooling up to 22 degrees ambient temperature and partial free cooling above this level. This has created increased savings based on lower operational expenditure when compared to a traditional cooling approach, greatly reducing the total lifecycle cost of the facility.

The design has also adopted a scalable approach to handle future growth requirements. It has the ability to support up to a 550 kVA IT load and provides N+1 resilience throughout the infrastructure.

Electricity supply in the facility is supported by a parallel N+1 static UPS system, standby diesel generator and dedicated transformer, whilst N+1 distribution with dual feeds to each IT rack position was also installed.

the benefits



- **Increased Performance** – A DCiE of 77 per cent, representing an overall performance improvement of over 40 per cent when compared to the previous data centre infrastructure.
- **Energy Efficiency** – A predicted design PUE measurement figure of 1.3 and a projected saving in annual power consumption of 4.1 million kW-h. A reduction in emissions of 2.2 million kg per year (based on full IT deployment), with actual savings of 1.8 million kW-h and 960,000 kg of emissions from day one (based on an initial IT deployment of 220 kW).
- **Future Proof** – Support for high-density hardware platforms of up to 30kW per rack, whilst possessing the capability to support an IT load of 550kVA to handle future requirements.
- **Project Management** – an end-to-end solution with highly responsive client service and project management. The data centre was completed on-budget and on-time.

can we help you and your company?



Can we tender for your new data centre design and build project? Could your facility benefit from an energy efficiency assessment? Please get in touch...

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