

# CLIENT CASE

# RESILIENT DESIGN

FINANCE UNITED KINGDOM

- UPS type: Dynamic UPS
- Rating: 1500 kVA of no break and 500 kVA of short break @ 0.8 pf
- Engine rating: Prime power rated at 2000 kVA
- System configuration: Isolated parallel (ip)
- Phase 1 install: 12 modules, 4 separate ip systems
- Total install: 24 modules, 4 separate ip systems
- Operating voltage: 400 V/50 Hz
- Location: Individual plant rooms

The client is a leading financial institution with business units across the world. To drive its position within the United Kingdom and Northern Europe it required a new and extremely

resilient data centre complex to be constructed, which is located in the UK. This complex is designed to a similar brief to the client's other recently built data centre complexes.

## Project Challenge

The client's requirement was for a data centre complex designed and constructed to an extremely high level of resilience. The complex consist of two physically separate data centre buildings and each data centre building has an "N+N" redundant power supply system within it. As the complex is designed to accommodate the company's growth over many years, it will inevitably be lightly loaded at the start of its life. This is accentuated more by the N+N design. So the challenge was to provide a design that was

highly resilient and yet could be scaled up as the loads within each data centre increase. To achieve this a review of UPS technologies was carried out and from this Dynamic Rotary UPS was selected. Following that a commercial and engineering tender exercise of the two leading dynamic UPS companies was held. HITEC provided to be the most technically and commercially capable company to support the client in this long term venture.



## Project Solution

HITEC was already well versed in the design of Isolated Parallel (IP) system configurations prior to securing this project. As the design of the Dynamic UPS was so critical to the project, it was the very first order placed; even ahead of the main contractor. A "turnkey supply" approach was decided upon for the Dynamic UPS and its associated switchboards as the integrated operation of the two is critical to meeting the resilient operation required. This allowed HITEC to be able to control the design of the DRUPS, switchgear, protection and controls.

HITEC's first steps were to undertake a full and thorough review of the client's own design of the IP

configuration proposed from the site. This showed difficulties in physically constructing some aspects of the electrical installation and also showed a weakness in the resilience under certain fault conditions. The scheme proposed by HITEC did away with both of these without introducing any other disadvantages. It made the construction of the electrical switchboards "modular" to each unit and also introduced differential protection so a fault on any part of the IP system affects only one unit. This was readily facilitated by the turnkey supply approach adopted for the Dynamic UPS package comprising of the DRUPS and the LV switchgear.

**"HITEC SUPPORTED THE AMBITION OF TECHNOLOGICAL INNOVATION AND SIMPLIFICATION ENABLING A LOW RISK PROFILE, AND ALLOWS TO MAKE COST SAVINGS ACROSS THE BUSINESS."**

## Customer Experience

HITEC delivered on designing and providing highly resilient Isolated Parallel UPS systems for the two buildings at the data centre complex. The design simplified and reduced the impact of a fault on the main electrical infrastructure of the IP

system. It is designed to accommodate the increase of site load by being able to double the capacity of the Dynamic UPS system within the same configuration and without the need to change any of the components already installed.



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