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CUSTOM ENGINEERED SOLUTIONS

DELIVERING 132KV BESPOKE TRANSFORMER SOLUTION FOR DATA CENTRE SITE

Profile

Product
132kV bespoke transformer

Location
Hemel Hempstead

Installation
2022

BRUSH Transformers delivered an innovative, custom engineered 132kV transformer solution for a data centre application ensuring uptime and redundancy in supply.

Located in the Hemel Hempstead area, BRUSH worked closely with the customer to deliver the electrical balance of plant equipment within the high voltage substation required to connect this new infrastructure to the grid.

- Reverse power flow transformer
- Safeguard against unplanned outages
- Smaller footprint
- Customised solutions

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The Challenge

Redundancy and uptime are one of the most critical parameters in data centre design. These critical principles drive the design of the whole power infrastructure of the data centre, including the requirements for equipment in the high voltage substation such as transformers.

This drive to ensure uptime and redundancy in supply, in terms of the power transformer, entails a dual LV design in an n+1 configuration. In this manner, the site load can be transferred not only between the 2 power transformers, but also between LV connections by having each power transformer equipped in a dual LV winding configuration.

In this particular site this philosophy was indeed used, and our transformers were designed and manufactured to provide a total of 60MVA of apparent power from the HV side, which then was stepped down to 2 LV windings at 11kV level.

The added challenge here was the capability to provide this power in an unbalanced LV scenario, requiring the sizing of the LV windings so that in a worst-case scenario either of the two windings would withstand up to 40MVA load and the other 20MVA or vice-versa.

The Solution

Through an innovative design approach, BRUSH was able to put forward a bespoke solution for the application in which the two LV windings can go up to 40MVA as long as the other winding load remains up to 20MVA, ensuring the total power required at 60MVA.

The transformers provided also benefit from a very compact layout, with tank attached radiators and an optimised footprint, allowing for significant savings on civil costs in the substation.

The Result

The transformers will play an important part in the data centre having the intended redundancy in supply as well as the uptime assurance desired.

Custom engineered solution to ensure uptime and redundancy in supply

BRUSH Transformers: Nottingham Road, Loughborough, LE11 1EX United Kingdom **T: +44 (0) 1509 611411**