

300MW 132/33kV DATA CENTRE SUBSTATION — DESIGN

Principal design & DNO approval · UK Power Networks

SCOPE — Concept & Detailed Design · Project Management · Principal Designer · Civil & Structural Engineering · 3D Modelling · Protection Design · DNO Design Approval

VOLTAGE
132/33kV

DELTA HV ROLE
Principal Designer

CAPACITY
300MW

DELIVERY MODEL
Contestable design & DNO approval

SECTOR
Data Centre

SWITCHGEAR
DNO-approved SF6-free GIS

HOST DNO
UK Power Networks

CLIENT
Undisclosed

PROJECT OVERVIEW

Delta HV delivered the full design for a 300MW 132/33kV substation serving a data centre installation, acting as Principal Designer and carrying the scheme through to design acceptance by UK Power Networks. The design brought primary, civil, structural, architectural and protection disciplines together on a tight timescale, supported by 3D modelling to resolve interfaces before construction and by continual engagement with the DNO, manufacturers, the client and the client's main contractor. Delivery in line with UKPN's timelines was the end client's principal driver, and the contestable design was accepted accordingly.

DESCRIPTION & OVERVIEW OF WORKS

Concept & scheme design	Concept design, site surveys, setting out and completion details, and value engineering solutions that saved time and cost during the design stage.
Electrical protection design	Main protection diagrams, protection schematics, wiring diagrams, busbar and clamp details, and plant and electrical specifications.
Substation engineering	Earth electrode design, lightning protection, cable route design, and lighting, power and heating design across the substation.
Civil & structural design	Civil engineering, structural engineering, sewerage and drainage engineering, pile design, and architectural and landscaping finishes, with clerk of works support through construction.
3D modelling	3D modelling carried out as part of the design process to highlight and resolve design interfaces between disciplines and equipment before work reached site.
Stakeholder engagement & DNO approval	Continual engagement with the DNO, manufacturers, the client and the client's main contractor, culminating in design acceptance of the contestable works by UK Power Networks in line with programme.

Technical highlight — one of the first SF6-free GIS interfaces outside UKPN

The scheme adopted DNO-approved SF6-free GIS switchgear, with Delta HV among the first to design the interface for the product outside UK Power Networks' own projects. With little precedent to draw on, the arrangement was developed directly with the manufacturer and the DNO and proven in 3D before approval — removing SF6 from the installation while meeting UKPN's design standards and timeline.

