



Accelerating your journey to Net Zero

Blake Clough Consulting is a specialist energy consultancy with a focus on electricity networks. We cover a range of areas relating to power systems analysis, feasibility studies, project engineering, innovation, regulation and technical strategy, with a strong emphasis on our customer relationships.

We are passionate about the decarbonisation of the energy system and the transition to “Net Zero” and aim to support our clients to accelerate this change as effectively as possible, whether that be local authorities, large network companies, or private developers.

Our work is underpinned by solid analysis and modelling, including techno-economic assessment, cost benefit analysis, power systems analysis, network modelling and innovation projects that tackle real-world system challenges, demonstrate new approaches to network operation and planning, and generate learning that informs scalable, long-term solutions.

Data Centre Developments

We have been supporting data centre developers across the full project lifecycle, providing both strategic grid advisory and detailed power systems engineering services. Our involvement spans from early-stage, grid-led site origination through to connection delivery and formal grid code compliance.

Capacity Scouting and Grid-Driven Site Origination

Strategic identification of substations and regions offering available firm demand headroom and physical bay capacity, underpinned by CP2030 modelling, network constraint analysis, and a review of planned reinforcement works. This approach enables developers to focus on locations with a greater probability of achieving faster, lower-cost connection outcomes.

Site-Specific Feasibility Studies

Detailed technical assessments of shortlisted sites, including thermal headroom analysis, fault level considerations, reinforcement risk review and high-level cost and connection timescale benchmarking.

Connection Strategy Assessments

Evaluation of alternative Points of Connection (PoCs), voltage levels and phased connection options, alongside analysis of regulatory developments and impacts from CMP435 attrition to identify credible acceleration pathways.

Distribution & Transmission Grid Application Preparation

End-to-end support in preparing and submitting DNO and TSO connection applications, including Single Line Diagrams (SLDs), Data Registration Code (DRC), as well as managing subsequent technical queries.

Private Wire & Behind-the-Meter (BtM) Support

Technical and regulatory assessment of hybrid supply strategies, including private wire arrangements, low-carbon dispatchable generation, and integrated energy solutions to mitigate grid constraints and allow for earlier project energisation.

Power Systems Compliance Studies

Delivery of the full suite of load flow, fault level, harmonic, protection coordination, P28, G5/5 and dynamic RMS/EMT studies required to demonstrate compliance with G99, Grid Code and TO requirements through to energisation and final operational approval. We also have the capability to deliver these studies across multiple nations, tailoring our approach to the specific Grid Code and Transmission Operator requirements applicable in each country.

Blake Clough Consulting were appointed to lead on a Capacity Scouting strategic assessment (Confidential Client)

Delivering a strategic assessment to identify available firm demand headroom at Grid Supply Points (GSPs) within a 100 km radius of a major population hub, with the objective of highlighting the most favourable regions for originating future data centre developments.

The analysis covered the following:

- Leveraged our CP2030 expertise to screen all GSPs in the study area and quantify capacity and physical bay availability expected to be released through Gate 1 attrition under Connections Reform.
- Applied analytical techniques to reconstruct and estimate demand queue positions at each GSP using publicly available DNO data.
- Undertook sensitivity analysis to assess the impact of planned network reinforcements and potential longer-term Gate 2 attrition on both thermal headroom and substation space availability.
- Assigned Red/Amber/Green (RAG) ratings to each GSP, with additional flagging of substations subject to existing or emerging fault-level constraints.
- This work enabled the client to deprioritise substations with structural or forecast constraints, while focusing on locations more likely to offer faster and lower-cost connection opportunities.

Blake Clough Consulting were appointed to lead on a Multi-Site Data Centre Feasibility Assessment (6 Locations, Confidential Client)

We undertook a strategic feasibility assessment to support the development and connection of data centres across six sites that were previously generation projects and had received Gate 1 notifications under CMP435. The objective was to determine the suitability of each location for large-scale data centre deployment from a grid, infrastructure and planning perspective.

The assessment was structured across three core workstreams:

- **Grid Feasibility:** Evaluation of the electricity network's ability to accommodate significant new demand at each site, including analysis of available headroom, reinforcement risk and connection strategy options. The assessment also considered the potential role of on-site or proximate generation assets, including non-grid-connected solutions, as a source of backup or resilience.
- **Connectivity Assessment:** Review of each site's ability to support high-performance digital infrastructure, including proximity to fibre routes, carrier availability, and alignment with key demand clusters and enterprise hubs.
- **Planning and development Feasibility:** Technical and physical appraisal of each location, considering land availability, site configuration, planning constraints, environmental considerations, and water resource availability to support cooling requirements.

This multi-criteria approach enabled the client to compare the relative strengths and constraints of each site, informing prioritisation and shaping the next phase of their development strategy.

Blake Clough Consulting were engaged to provide power systems studies and advanced modelling services (Confidential Client, Denmark)

Blake Clough has been engaged to provide power systems studies and advanced modelling services in support of a proposed 400 kV-connected Data Centre in Denmark. The scope has been structured to meet the staged compliance requirements of the Transmission System Operator, covering pre-energisation studies through to final operational approval (EON, ION and FON milestones).

- Passive Power Quality Report (pre-EON)
- Load Flow & Reactive Power Capability (0.99 PF compliance)
- Fault Level Study (IEC 60909)
- Static simulation model delivery + aggregation guide
- Harmonic Simulation Study + frequency-dependent harmonic model (incl. Thevenin equivalent load representation)
- Dynamic RMS (DIgSILENT) & EMT (PSCAD) model development to TSO / NC DC Appendix C requirements
- RMS & EMT compliance studies (voltage/frequency dependency, FRT & short-circuit contribution)
- RMS vs EMT model comparison report
- Post-commissioning model verification against on-site test data (pre-FON)