techUK Data Centres Programme

Notes for CCC:

Sector Resilience to High Winds and Lightning

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The UK's data infrastructure of around 500 data centres is provided by multiple private operators. Unlike utilities, service provision is not defined geographically, and UK data centres support IT functions for customers all over the world, in every economic sector.

Individual operators compete on the basis of their resilience and both international, peer reviewed standards like ISO27001 and the EN5600 series, and commercial industry standards like Uptime Tier Ratings include provisions for risks like high winds and lightning. Specifically, operators comply with BS EN 62305 for lightning. For high winds building codes and property insurance requirements tend to set the requirements as opposed to bespoke standards.

Lightning poses both direct risks (strikes and surges) and indirect risks (damage to communications, energy and transport infrastructure) to data centres. High winds can also compromise communications, energy and transport connections but direct effects are less likely: data centres tend to be low-rise and high spec.

Direct effects: Risk of lightning is addressed by advanced earthing systems and surge protection, plus compliance with the BS EN 62305 mentioned above. There is an active competitive supplier market for lightning protection products and services within the sector.

Indirect effects: On site emergency generating capacity (batteries for instantaneous supply and diesel generators for longer outages) accommodates Interruptions in grid electricity and fluctuations in frequency. Data centres are relatively resilient to transport interruptions: resilience planning usually requires multiple access routes and most can run with skeleton staff and increasingly, entirely remotely. However, if combined with grid power outage, severe transport disruption could delay oil supplies for emergency generators. Significant damage to communications infrastructure continues to represent risks that operators address through approaches like mirroring and disaster recovery sites. Resilience tends to reflect the criticality of the operations being supported.

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