Powering
Great Britain's
Data Centre Ambitions

Roadnight Taylor

THE INDEPENDENT SPECIALIST GRID CONSULTANCY

Shaping the Future of Data
Centre Development in
Great Britain

Contents

Introduction

Great Britain stands at a pivotal juncture. Projections indicate immense growth potential for the nation's data centre sector, with it predicted to contribute an additional £44 billion to the UK economy by 2035.

But for this promise to be realised, formidable challenges must be overcome.

The relentless pace of technological innovation and an ever-increasing appetite for data are placing unprecedented pressure on GB's existing infrastructure and regulatory frameworks. This is where Roadnight Taylor's expertise comes in. Our purpose, here, is to empower organisations – and society as a whole – to identify, understand, and overcome complex

and high-stakes electricity grid connection issues.

It is with this deep understanding of the intricate energy infrastructure landscape that we present this report. It delves into the complex dynamics of the GB data centre market, exploring the significant opportunities that lie ahead and, crucially, identifying the barriers that must be navigated.

Through a comprehensive survey of key industry players, we have uncovered the practical obstacles and strategic considerations shaping the future of data centre development in Great Britain.

Hugh Taylor
CEO, Roadnight Taylor

Methodology

The research was conducted in May 2025 via a Censuswide Survey of 50 data centre developers, investors, and operators in Britain.

About Roadnight Taylor

Roadnight Taylor is an independent, specialised grid consultancy dedicated to achieving timely grid connections, at least cost and risk, to the GB electricity networks. The business focuses exclusively on non-standardised, non-commoditised services, helping organisations identify,

understand, and overcome complex connection issues.

The company's mission is to maximise its impact for its clients, and for society as a whole, concentrating on projects where its expertise can deliver the greatest financial and societal impacts.

Its clients include Centrica, Octopus Energy, Blackstone, QTS, Virtus, Cyrus One, Amazon, Diageo, and the Welsh Government, working on projects such as the Blyth data centre, Cameronbridge Distillery, and Stanstead Airport.
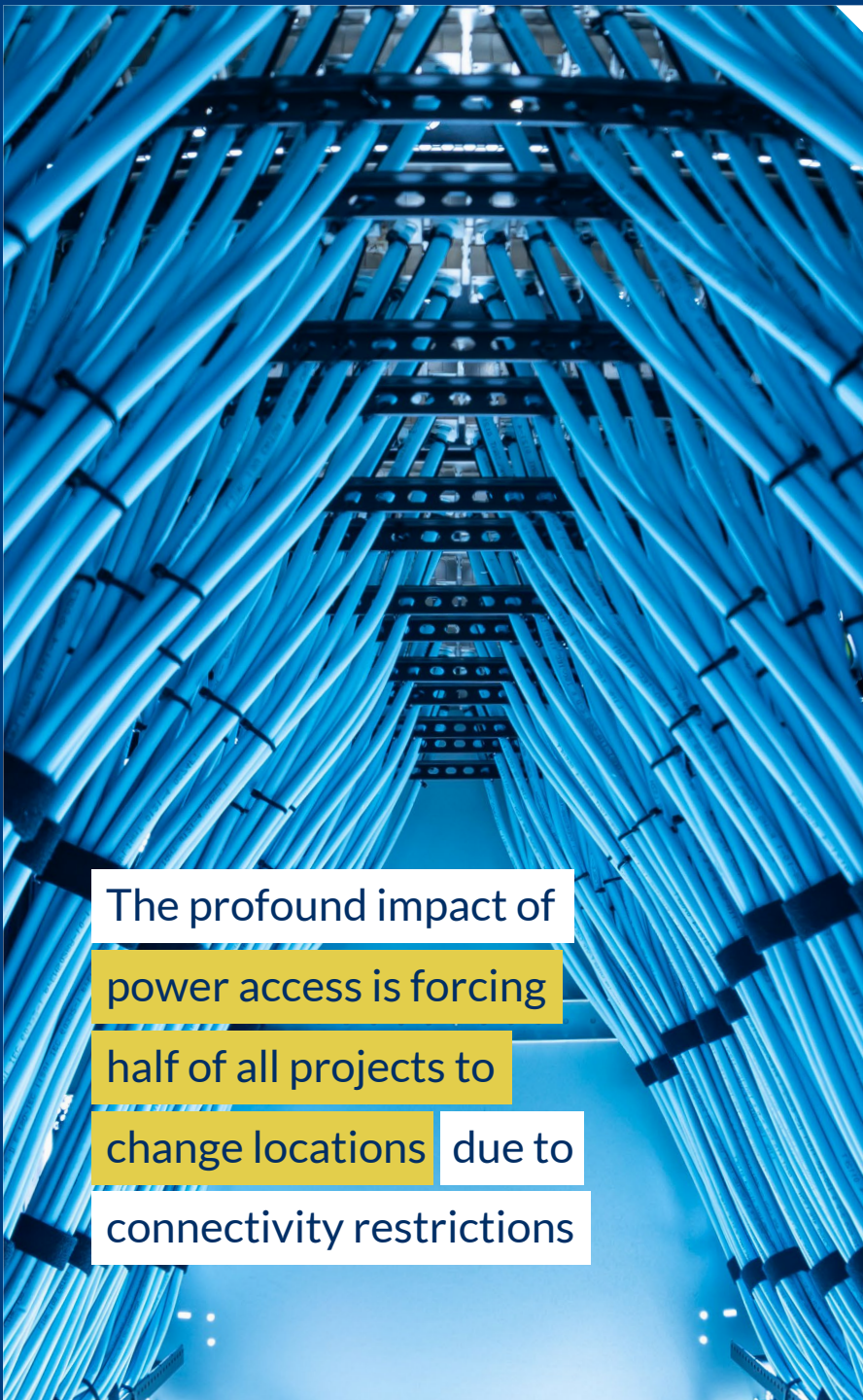
Executive summary

The profound impact of power access is forcing half of all projects to change locations due to connectivity restrictions

The UK data centre sector is poised for significant expansion, with market predictions indicating it could contribute an additional £44 billion to the UK economy by 2035. However, this growth faces several challenges.

Over half (54%) of data centre developers, investors, and operators identified securing an electricity grid connection as one of their most predominant barriers. This is compounded by construction challenges, planning hurdles, high operational costs, and limited site availability.

The profound impact of power access is forcing half of all projects to change locations due to connectivity restrictions. When evaluating potential sites, a resounding 84% consider electricity network reliability and resilience as vital. While 80% place the same importance on power availability.

There is also a significant disconnect between expectation and reality regarding grid connection timelines, complicating the development of data centres further. While half of the industry optimistically anticipates achieving a connection within 1-2 years, the true wait for a large-scale project such as a data centre can span three to eight years. This disconnect is further exacerbated by key disruptors, including energy cost and pricing uncertainty, technical issues during connection, and the need for significant infrastructure upgrades to support data centre development.

Beyond specific concerns, 64% of respondents believe broader market issues must be addressed for Great Britain to fulfil its data centre ambitions. Sustainability is a priority for 82% who favour clean power grids for investment, while high grid connection costs are pushing 76% to explore more economically favourable international regions such as Africa and Asia. Additionally, 74% believe widespread major national infrastructure project delays are curtailing data centre projects.

Despite these challenges, 64% of respondents remain optimistic that Britain is on track to become a leading data centre powerhouse.

The current landscape

The requirement for UK data centres is growing at an unprecedented rate, with market predictions indicating a 20-25% annual increase in demand for their services and capacity.

This expansion has the potential to contribute an additional £44 billion to the UK economy by 2035, which underscores that scalability has never been more important.

However, redeveloping or retrofitting existing data centre sites is not always viable. Many sites simply can't handle bigger capacities, while it would be wildly uneconomical to upgrade others.

For the industry to keep up, it must invest in new sites. But the process of developing new data centres is not an easy one and comes with a serious set of challenges for investors, developers, and operators to overcome.

Barriers to growth

When asked for the five biggest barriers to data centre growth in Britain,

Five barriers to data centre deployment in Britain (as nominated by % of respondents)

Barriers to securing an electricity grid connection
54%

Construction challenges
54%

Planning hurdles
52%

High operational costs (OpEx)
50%

Limited site availability and land constraints in key areas
42%

securing an electricity grid connection came out on top, nominated by over half (54%) of the respondents questioned for this study.

This challenge is multifaceted and is driven by three key factors:

1. The availability of grid capacity at a desired location
2. The time scales involved in obtaining such a connection
3. The substantial costs associated with securing a connection

These issues are further complicated by the dynamics of the wider Great Britain market, where an already strained electricity network faces increasing demand from sectors across the board.

In addition to securing a grid connection, an equal number stated that construction challenges, such as supply chain disruptions, resource constraints, and labour shortages form another major barrier to data centre deployment.

Planning hurdles, like local authority and community opposition, environmental concerns and regulations, were identified by 52%, with high operational costs, limited site availability and land constraints in key areas, rounding off the top five.

Grid availability

Data centres require over 100 megawatts, or enough power to supply more than 70,000 homes.

This substantial energy requirement underscores the growing impact of data centres in the global energy landscape. According to the International Energy Agency (IEA), energy consumption by the data centre industry accounted for more than 1% of the world's power consumption in 2023 and is expected to reach 8% by 2030. In the UK, this is, in part, being driven by the rapid expansion and continuous development of artificial intelligence, plus the UK Government's ambition to encourage innovation more widely.

The escalating power demands of data centres

Having asked interviewees for their five big barriers, we then asked which is their single biggest challenge. **Almost one in five (18%) identified power supply as the single biggest challenge to data centre deployment in the UK,** surpassed only by OpEx costs (30%) and planning difficulties (20%).

This challenge of power supply is particularly pronounced in and around urban areas where data centre projects are both suffering from and, in some instances, causing capacity problems. For example, there have been widely reported instances of housing projects in West London facing significant delays due to insufficient available grid capacity created by local data centre developments.

Addressing the connection queue

The intense competition for grid connections has led to an unmanageable queue. This situation is not only inefficient but raises sustainability concerns, as resources are tied up in projects with no clear path to completion. Together, this has culminated in the National Energy System Operator (NESO) re-evaluating the queue through Connections Reform. This process aims to significantly reduce the queue by prioritising 'needed' projects and removing those that are superfluous or that are not ready to connect, but continue to hold capacity which prevents more advanced and necessary projects from connecting.

Impact on project location and strategy

Half of the respondents indicated that they have had to change the location of their data centre project due to data network or connectivity restrictions. Furthermore, **almost a third (30%) have been forced to relocate projects specifically due to electricity or grid barriers.** This demonstrates the direct impact of grid availability on strategic decisions, and the scale of the challenge facing developers in identifying suitable locations that can accommodate the immense power demands of modern data centres, while also aligning with network infrastructure and regulatory requirements.

Indeed, energy is so mission critical when it comes to data centre projects that a resounding 84% rated electricity network reliability and resilience as vital or very important when evaluating potential locations for their projects. Similarly, 80% gave the same level of importance to power availability.

Location

As we've seen, the location of data centres is profoundly impacted by electricity and grid considerations, but what else do our respondents have to consider?

Selecting a suitable location is a complex undertaking with many factors coming into play.

Electricity grid

1. **Power availability:** Sufficient and reliable access to the grid

Fibre connectivity

2. **Connectivity:** Access to robust fibre optic networks and high-speed internet infrastructure

3. **Low latency and quick data access:** Proximity to end-users and key network exchange points to minimise data transmission delays

4. **Proximity to IT teams and users:** Ensuring accessibility for operational staff and service delivery

Land

5. **Planning restrictions:** Navigating local authority regulations, environmental concerns, and community opposition

6. **Natural disaster preparedness:** Assessing risks from the environment, including flooding and other extreme weather events

7. **Site availability:** The presence of suitable land

Power and planning

Among these, power and planning emerged as the most significant hurdles respondents have experienced firsthand or are concerned about with a current project. **42% expressed concern or have faced limited grid capacity in their preferred locations, while 38% encountered challenges with the grid connection process itself.** This encompasses a spectrum of issues, including complex permitting procedures, protracted wait times for connection, and the prohibitive costs associated with integrating new infrastructure into the existing power grid.

Power and planning emerged as the most significant hurdles for respondents

Beyond power, over half (52%) of respondents identified planning hurdles as a significant challenge, with 42% saying site availability is a key constraint.

Implication of location challenges

The consequences of these challenges are profound as new data centre projects should expect to commit to grid upgrades before construction can begin. They must also commit to upgrading communications networks to ensure adequate fibre optic cables, high-speed internet access, and critical network points in a prime location, all of which are crucial for data centre functionality.
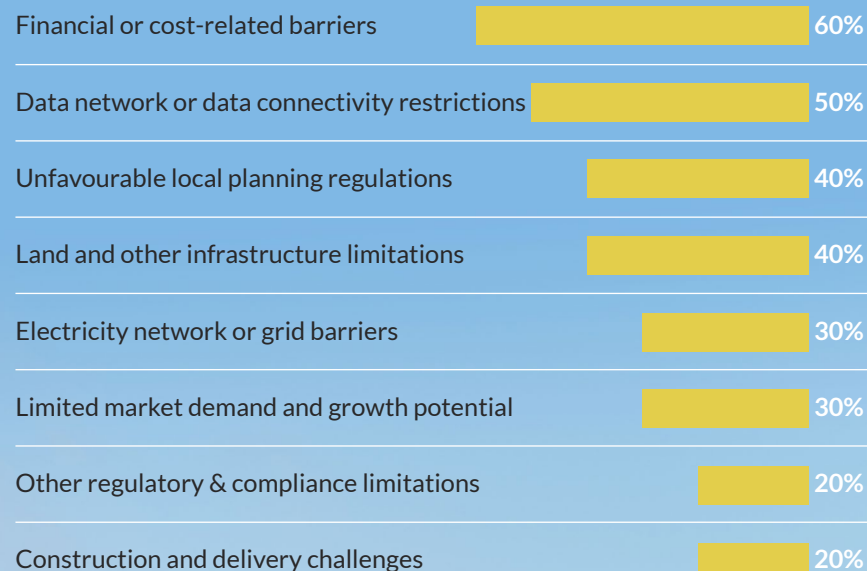
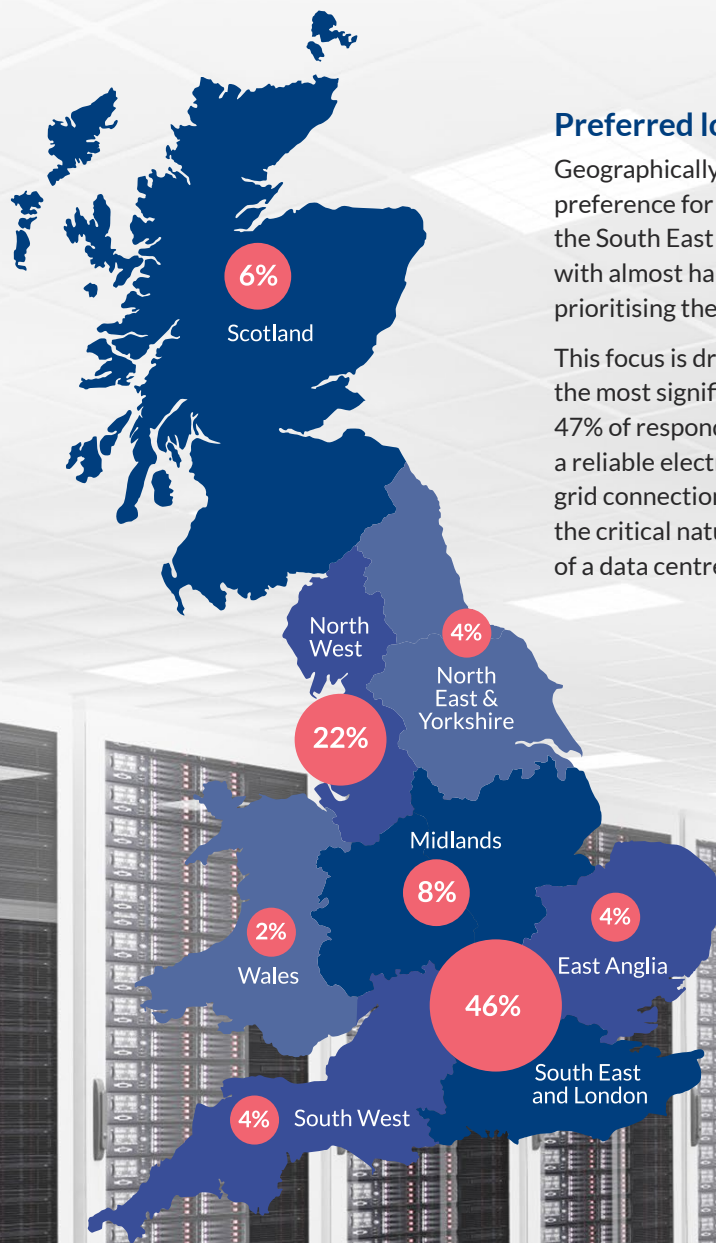But this is a costly and long process. The cumulative effect of infrastructure not pre-existing is stark. **One in five (20%) respondents were unable to secure their first-choice location for their projects,** underscoring the impact of these challenges on strategic development.

Barriers to data centre projects

Beyond direct grid access, the availability of land and supporting infrastructure, including transmission proximity, water, and cooling resources, during the decision-making process are deemed pivotal by 82% of respondents. The favourability of the local planning and regulatory environment is also a critical consideration.

Barriers to data centre projects (as nominated by % of respondents)

Barrier	%
Financial or cost-related barriers	60%
Data network or data connectivity restrictions	50%
Unfavourable local planning regulations	40%
Land and other infrastructure limitations	40%
Electricity network or grid barriers	30%
Limited market demand and growth potential	30%
Other regulatory & compliance limitations	20%
Construction and delivery challenges	20%

Preferred locations

Geographically, the data reveals a strong preference for development within the South East of England and London, with almost half (46%) of respondents prioritising these locations.

This focus is driven by several factors, with the most significant, which was cited by 47% of respondents, being the presence of a reliable electricity network and efficient grid connection feasibility. This emphasises the critical nature of the grid on the viability of a data centre project.

6% Scotland

4% North East & Yorkshire

22% North West

8% Midlands

2% Wales

4% East Anglia

46% South East and London

4% South West

The top five reasons for choosing the South East of England and London (as nominated by % of respondents)

Reliable electricity network and efficient grid connections
47%

Strong market demand and growth potential
45%

Strong data network connectivity and carrier options
35%

Accessible construction resources and efficient delivery timelines
35%

Supportive regulatory & compliance environment
33%

Timescales

Project timelines are a significant indication of any infrastructure project's viability. Prolonged or unmanageable timelines can quickly erode investor confidence and lead to abandonment. However, the reality is that large-scale infrastructure projects, like the construction and grid connection of data centres, are a significant undertaking. They take time.

Those studied have some appreciation of the time scales involved. For instance, almost a third (32%) expressed concern regarding long lead times when embarking on a data centre build. This is compounded by the fact that over half (54%) consider construction challenges a significant barrier to project kick-off.

Despite such awareness, many seem to massively underestimate the time involved in securing a grid connection.

Expectations vs reality

For instance, **half of industry professionals expect a grid connection for their data centre project to be completed in 1-2 years.** This is an incredibly optimistic outlook that is at odds with industry realities. Experience from Roadnight Taylor indicates that **securing a grid connection for a large-scale project, such as a data centre, typically takes at least three years but can take as long as eight.** In short, there is a significant disconnect between developer expectations and realities.

This underestimating of the time involved perhaps explains why only 18% of respondents cite securing a reliable and robust grid connection as their single biggest challenge when embarking on a data centre project. As people see projects slowed and delayed over the next few years due to grid connection challenges, we expect to see even greater awareness of the true time challenge of grid connection.

Half of industry professionals underestimate the time it takes to complete a grid connection

While concerns about grid connection timelines are prevalent, the direct impact on project delays may be mitigated by proactive planning

Disruptors to project timelines

Beyond grid connection, respondents identified technical issues during the connection process as the second most common disruptor to project timelines. This comes in just behind energy costs and pricing uncertainty which is also a

The top five disruptors to project timelines as nominated by % of respondents

£ **Energy cost and pricing uncertainty**
36%

⚙ **Technical issues during the connection process**
32%

↑ **Requirement for significant infrastructure upgrades**
26%

👥 **Coordination challenges with multiple stakeholders**
26%

📄 **Delays due to permitting or regulatory processes**
24%

significant worry and can put investors off making a financial decision if they believe energy costs will significantly increase.

Mitigating delays

While over half (54%) of respondents anticipated grid connection as a serious barrier to the nation's data centre ambitions, the actual experience of delays to grid capacity and the connection process appears to be less widespread. Only one in five (20%) experienced issues with limited grid capacity, and less than one in six (14%) reported problems during the connection process that directly delayed their projects.

This could be because many of those interviewed are still at the early feasibility and planning stages of projects. They haven't yet experienced the realities of getting a project to this stage.

This also suggests that while concerns about grid connection timelines are prevalent, the direct impact on project delays may be mitigated by proactive planning. Nevertheless, the underlying challenges of long lead times and technical complexities within the grid connection process remain significant.

The wider GB market

Beyond site-specific and project-level challenges, almost two thirds (64%) of respondents believe Great Britain must confront a further set of market-wide issues, if it's to become a data centre powerhouse.

#1 Sustainability

Firstly, the overwhelming majority (82%) prioritise sustainability, with a strong preference for connecting to clean power grids, like those of Switzerland or Norway, influencing their decisions on where to develop, invest, or operate. While GB has ambitious decarbonisation targets, the current pace and scale of renewable energy deployment and associated grid upgrades may not always align with the rapid expansion plans of data centre operators that seek immediate clean power sources.

#2 Cost

The cost of grid connection in GB represents a significant barrier to development, with a staggering **three-quarters (76%) of respondents stating that it is cost-prohibitive.** This overwhelming consensus highlights that these high costs are not just an inconvenience but a fundamental deterrent which directly restricts the capacity of businesses to undertake new projects within the GB market. This financial viability issue is so pronounced that it is pushing developers, investors, and operators to explore more economically favourable regions, such as Africa or Asia, in search of more viable opportunities.

#3 Delays

Widespread delays in major infrastructure projects across Britain are cited by 74% of respondents as a limiting factor for data centre development. These broader infrastructure delays often impact critical elements like transmission network upgrades or new generation facilities. They can further create bottlenecks that directly impede the timely and efficient connection of new data centres.

#4 Future energy security and investment decisions

Looking to the future, the need for continuous growth in data centre capacity means developers, investors, and operators are focused on markets that offer future-proof solutions. There is significant concern for future energy security. More than four fifths (82%) of those questioned are apprehensive about GB's future ability to meet escalating energy demands. This widespread concern is a critical factor influencing investment decisions, making other international markets with clearer pathways to energy resilience more appealing for long-term data centre development.

#5 Policy and government support

In navigating these market dynamics, energy transition policies are proving to be a decisive influence. 82% of respondents indicate they could be swayed by Britain's energy transition strategies, whilst 76% are actively seeking greater Government support before they consider expanding their operations within the GB market. This highlights the crucial role of policy and Governmental frameworks in de-risking and incentivising future data centre investment.

> The need for continuous growth in data centre capacity means developers, investors, and operators **are focused on markets that offer future-proof solutions**

Conclusion

Despite the formidable challenges and prevailing concerns surrounding future grid capacity, planning hurdles, and operational complexities, there is optimism.

The insights gathered in this report confirm that over half (64%) of industry professionals believe that Great Britain is on track to emerge as one of the world's leading data centre powerhouses. While challenges are significant, the underlying potential and strategic advantages of the GB market are recognised, but there needs to be policy and infrastructure improvements to unlock this potential.

Navigating the intricate landscape of grid connections, regulatory environments, and market dynamics requires not only robust strategic planning but

Great Britain is on track to emerge as one of the world's leading data centre powerhouses

also specialised expertise to identify, understand, and overcome complex issues efficiently and cost-effectively.

By addressing the critical areas highlighted in this report, Great Britain can effectively de-risk future investment. We look forward to being at the forefront of this, helping businesses navigate the complexities of the GB electricity network to turn their ambitions into reality.
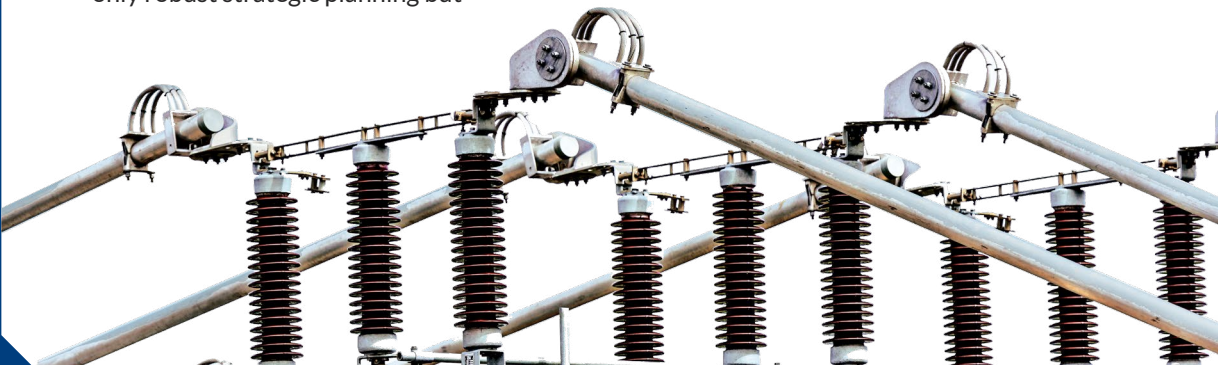
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