Savills Data Centre
Advisory EMEA

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REPORT
Savills Research

European Commercial – May 2024

European Data Centres

Navigating the new data-centric frontiers

savills

Introduction

The expanding footprint of AI applications across an array of industries is ushering in a paradigm shift within the realm of data centres, prompting a recalibration of priorities. Amidst this evolution, sustainability considerations and escalating expenses emerge as formidable hurdles. Balancing technological innovation, environmental stewardship, and financial viability is imperative for the sector's continued growth and resilience.

Summary

> "Despite the high number of new data centres anticipated to be built by 2028, the market is expected to remain largely undersupplied across Europe. We believe that prime yields, currently standing at 5-6% on the continent, will remain stable for most of the year, with a slight inward movement towards the end of the year as market dynamics evolve.
>
> Scott Newcombe, Head of Data Centre Advisory EMEA

European Data Centres : Navigating The New Data-Centric Frontiers

Key points

15.9% CAGR
Expected growth of the European AI market

The European AI market will reach €76.5bn this year, up by 25.9% compared to 2023, and then show an annual growth rate of 15.9% until 2030.

1.20
PUE

In Europe, the average Power Usage Effectiveness (PUE) has decreased from 1.74 in 2005 to a current average of 1.20.

20
Submarine cables expected until 2027

Twenty more submarine cables, accounting for 10% of the existing infrastructure are due for completion by 2027, adding roughly 150,000 kilometres of cables to the European network.

13,100 MW
European DC Power capacity in 2027

The European data centre power capacity is projected to rise to approximately 13,100 MW by 2027, reflecting a 27% increase whilst the total internet bandwidth usage will nearly triple during the same period of time.

+6.5% YoY
Data centre construction costs

Data centre construction costs increased by 6.5% annually to $9.1 million per megawatt, with Zurich still the most expensive market in Europe.

$36.6 BN
Global data centre M&A deals in 2023

The global data centre M&A value totalled $36.6 billion (€34.2 bn) last year reflecting an annual decrease of 18%. This dip can be primarily attributed to the absence of large transactions surpassing $10 billion.

31% CAGR
International bandwidth growth rate until 2030

Total international bandwidth usage in Europe is projected to rise by an impressive 31% compound annual growth rate (CAGR) until 2030.

Empowered By AI

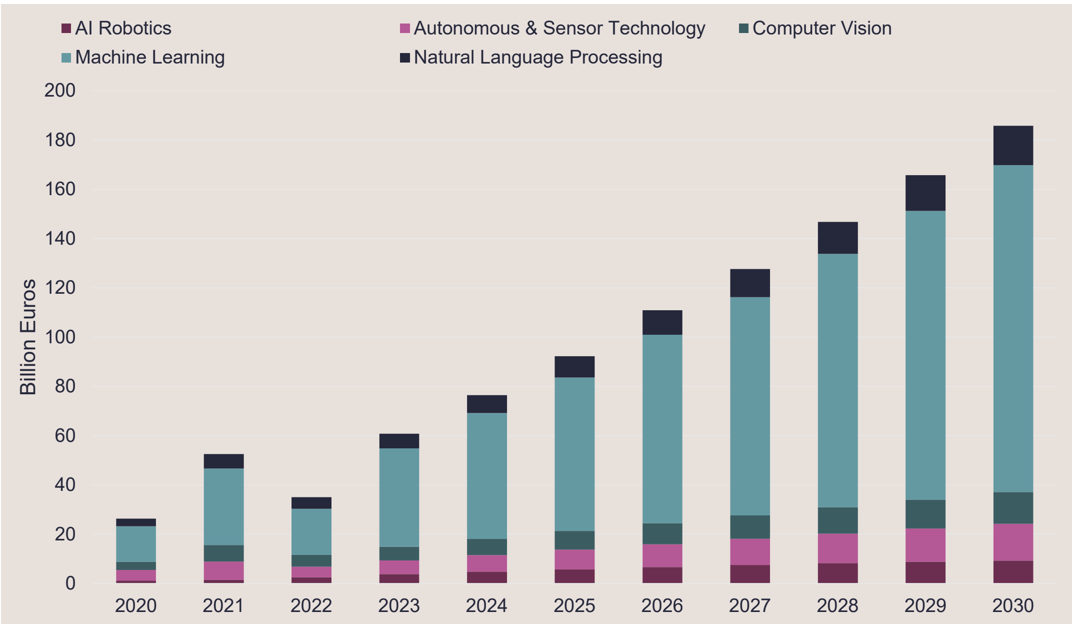
Undoubtedly, the most popular talking point of 2023 was the disruptive revolution of Artificial Intelligence (AI). A theme which generated a flurry of headlines following the launch of ChatGPT at the end of 2022, ushering in what will be remembered as the breakout year of artificial intelligence. In a matter of days following its release, ChatGPT took the internet by storm. OpenAI reported that the chatbot amassed a staggering 1 million users within five days. This widespread adoption offered the world a sneak peek into recent advancements in computer science. While it has come a long way, there is still a considerable distance before AI unveils its full potential and transformative possibilities.

From mythical beginnings to modern frontiers

The history of AI is a journey that spans millennia. While the concept of creating artificial beings with human-like capabilities has ancient roots in myths, formal AI emerged in the mid-20th century. Coined by John McCarthy in 1955, the term "Artificial Intelligence" gained prominence with the Dartmouth Conference in 1956, marking the sector's birth. The ensuing decades saw periods of advancement and challenges, with the AI Winter in the 1970s and 1980s slowing progress. However, the development of expert systems in the 1980s and the rise of machine learning in the 1990s reignited interest. The 2010s brought about a transformative era marked by big data and deep learning.

In the past 12 months, the popularisation of AI and its progressive widespread application across industries propelled the sector into new frontiers. Yet, we are merely at the onset of the era of AI; ongoing research and development continue to shape the sector's future, pushing boundaries in areas like robotics and autonomous systems, thanks to massive private investments. According to Crunchbase data, although venture investment continued to slow down in 2023, generative AI and AI-related startups raised nearly $50bn, up 9% from the $45.8bn invested in 2022. Statista projects that the size of the European AI market will reach €76.5bn this year, up by 25.9% compared to 2023, and then show an annual growth rate of 15.9% (CAGR 2024-2030).

Market size of European AI



Source : Savills Research based on Statista

AI's meteorite impact on the data centre industry

While only at the threshold of a tremendous surge, the sudden AI adoption has already brought profound changes to the data centre industry, promising great opportunities but also ushering in significant challenges. The breadth of AI's impact on data centres spans a broad spectrum, reshaping the demand for facilities, altering building infrastructure and design, refining operational and maintenance protocols, and optimising performances and resource utilisation.

Future demand set to explode, evolve and spread

Artificial intelligence is poised to significantly influence the demand for data centre facilities in various ways. Firstly, AI applications, particularly those utilising deep learning and complex algorithms, require substantial computational resources. Consequently, there is an increased demand for cutting-edge data centre facilities equipped with robust hardware to manage heightened workloads effectively. Furthermore, in response to the escalating need for extensive computational capabilities, data centres are projected to expand in scale to accommodate larger server farms and enhanced storage capacities. Moreover, to align with technological advancements, data centres will increasingly adopt specialised hardware like Graphics Processing Units (GPUs) and Tensor Processing Units (TPUs) to fulfil the demands of AI model training and inference.

This trajectory towards hyperscale and sophisticated facilities will also prompt advancements in cooling and power distribution systems to uphold optimal operational conditions, leading to a rise in power consumption within these facilities. Additionally, as many of these hyperscale AI data centres are location-agnostic, they are likely to be concentrated in regions with abundant energy resources, particularly green energy. Conversely, with the emergence of AI-driven services and applications requiring swift data processing, the significance of Edge data centres situated close to data generation points to minimise data latency will grow. Consequently, we anticipate an overall shift towards a more decentralised network of facilities to support AI workloads effectively.

Heavier building infrastructure requirements

Data centre buildings have multiple specific requirements to accommodate the unique demands of AI workload. As AI data centres generally house specialised hardware for which the weight can be substantial, the structural design of the building should account for the increased floor loading capacity. Whilst the industry standard floor loading capacity is generally 25kN per sqm, for AI-dedicated data centres, it is around 50kN per sqm and sometimes even higher, depending on the specific hardware and cooling solutions used.

Additionally, their floor height, traditionally above six metres slab to slab, can be much taller for AI-dedicated data centres (10-12m+), notably to accommodate specialised cooling systems. Furthermore, the building should support advanced cooling infrastructure, including precision cooling systems and potentially liquid cooling solutions, to manage the heat generated by high-performance computing hardware. Finally, AI workloads demand higher power densities. The building's electrical infrastructure should be designed to support these increased power requirements, considering redundancy and scalability.

Enhanced management and cost efficiencies

AI optimises resource utilisation by dynamically allocating computing resources based on real-time demand, enhancing operational efficiency and cost-effectiveness. This ability allows data centres to scale resources up or down as needed. Additionally, AI is pivotal in predictive maintenance for data centre equipment. By analysing data from diverse sensors, AI algorithms can forecast potential failures and issues, enabling proactive maintenance and minimising downtime.

Furthermore, AI technologies significantly bolster data centre security. Machine learning algorithms can identify anomalous patterns in network traffic, detect potential security threats, and swiftly respond to mitigate risks, thus strengthening overall cybersecurity measures.

Moreover, AI plays a crucial role in improving the energy efficiency of data centres. Through intelligent management of cooling systems, lighting, and other power-consuming components, AI helps reduce the environmental footprint of data centres.

The Energy Conundrum

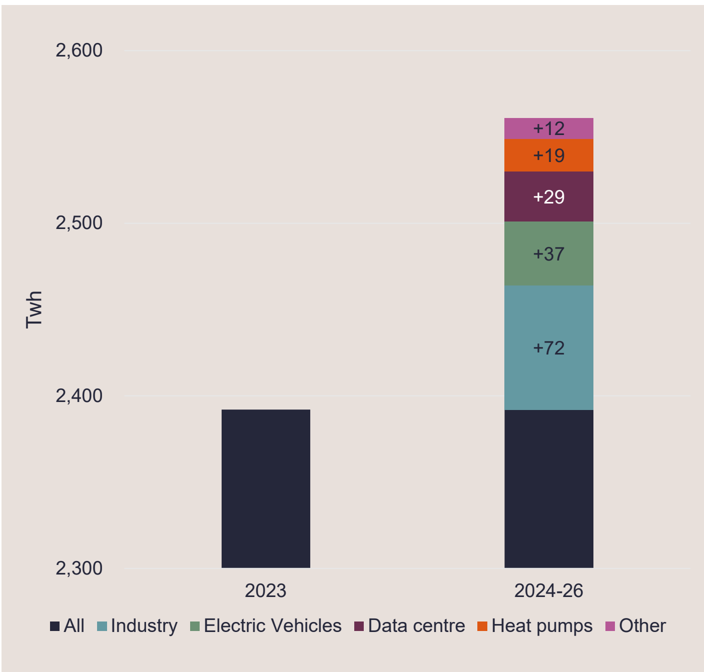
According to the International Energy Agency (IEA), the estimated global data centre electricity consumption in 2022 was 240-340 TWh, or around 1-1.3% of global final electricity demand. In the European Union (EU), data centre energy usage amounts to approximately 40-45 TWh, which translates to a slightly higher amount of 1.4-1.6% of total EU electricity consumption. By 2030, data centres are forecast to account for 3.2% of electricity demand within the EU, an 18.5% jump from 2018. This increase in consumption coincides with Europe advocating for a reduction in energy demand and the introduction of 'clean energy' targets, such as the EU aiming to be carbon-neutral by 2050.

Discussion around the energy sector, initially pinpointed by journalists and environmentalists as a topic that warranted attention in light of increasing environmental targets, has become more critical to central governments after the Russia/Ukraine conflict, triggering more consideration for energy-intensive industries. While this is a politically charged subject, data centre operators also have a huge interest in the narrative around energy availability, security and price. Especially since governments are increasingly scrutinising new data centre facilities.

As energy stands as the backbone of data centre operations, the industry finds itself grappling with mounting pressure and constraints imposed on the electricity grid. This challenge presents an intricate dilemma since it is poised to persist in the foreseeable future. Despite energy efficiency improvements in the data centre realm, the anticipated surge in the sector means that energy demand is forecasted to grow exponentially, particularly fuelled by the escalating integration of AI. As a result, data centre operators increasingly need to consider new development locations carefully and seek cities where not only is a significant portion of energy produced domestically to ensure energy security, but the price of energy is also low.

With the price of energy reaching record levels in 2022, starting in the wake of the pandemic and aggravated by the Russia/Ukraine conflict, the vulnerability of some markets to price fluctuations can be significant. Producing enough energy domestically to meet total demand, or being 'energy autonomous', provides a higher level of security than markets that rely on imports. For data centre operators, using the most secure and efficient source of energy at a low and stable price helps ensure the viability of new projects.

Estimated drivers of change in electricity demand in EU27



Source : Savills Research based on IAE

Rising restrictive regulations on new data centre builds

With 40% of Europe's power distribution grids over 40 years old increasingly constraining the growing demand, governments are increasingly forced to consider the impact of all new projects. This is notably the case for new data centre developments in locations with high energy demand, often resulting in permit delays or refusals. While this issue has the potential to affect most of Europe, the threat of development restriction is particularly high in the FLAPD markets (Frankfurt, London, Paris, Amsterdam, and Dublin), where strong population, business and industry density is already exerting pressure on the national grid.

Savills energy benchmark analysis shows that the FLAPD markets nearly all place in the bottom half of the ranking owing largely to the power restrictions put in place by central governments. Thanks to large nuclear power plants in France enabling a high energy autonomy, Paris is the only exception to the trend. In Amsterdam, local authorities imposed temporary bans and new environmental legislation on new data centre facilities in 2019. Four years later, restrictions were reinforced with a new regulation prohibiting the construction of any new data centre unless they can prove their benefit to the city. In Ireland, easy access to high-capacity subsea cables and the relatively low tax rate have positioned Ireland as a data centre hotspot. However, the decision made in 2021 to limit new connections to the grid has meant that data centre operators Vantage, EdgeConneX, and Equinix had permits for new developments rejected in 2023. In London, a proposal to build a hyperscale server farm and support ancillary buildings was denied by the government in November 2023 due to pressures on energy supply, despite the commitment to reusing heat waste in a nod to sustainability. In June 2022, Frankfurt's municipal council passed legislation designating districts where data centres can be built to control the sudden rise in data centre clusters in the city.

Renewable energy rising as the keystone

In this energy-constrained environment, the use of renewable energy is increasingly becoming pertinent to the granting of permits for new developments. With an increasing focus on sustainability targets in Europe, data centres powered by renewable energy are also more likely to gain investment from corporations with strict environmental policies to adhere to.

In Europe, the average share of renewable energy as a percentage of total energy produced is now at 56% across the cities tracked, compared to 45% five years ago. While no country produces 100% renewable energy, Norway comes the closest at 98%, some way above the European average. Overall, both the Nordics and the Baltics produce the highest share of renewable energy, owing to the availability of hydro and wind power. These two regions' ability to produce extremely vast amounts of renewable energy enables these markets to position themselves as best placed for 'green' data centre developments. Google recently announced that it is building a clean data centre in Skien, where it is expected to operate above 99% carbon-free energy when it opens in 2026, possibly due to Norway's large pool of renewable energy.

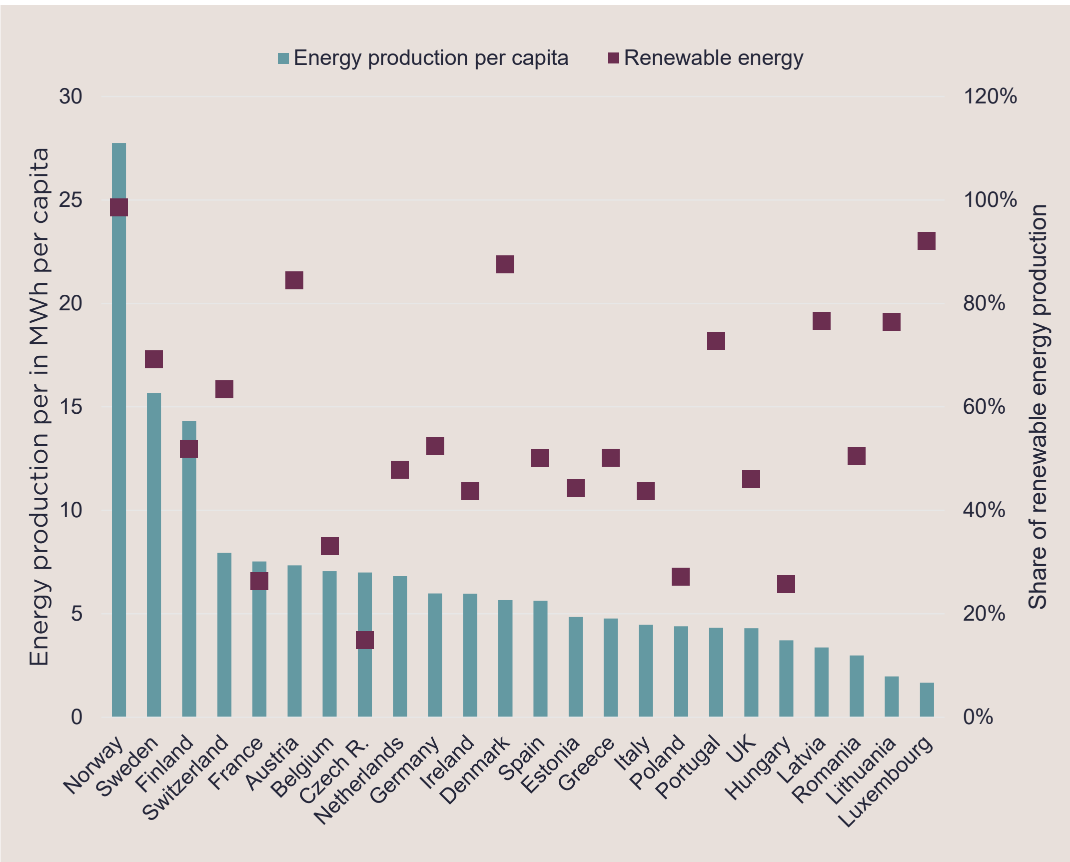
Energy dynamics: the Nordics' advantage

Thanks to their extensive green energy infrastructure, the Nordic countries lead our ranking in energy production. The total energy production (TEP) per capita in Europe currently stands at 6 MWh. While only seven markets surpass this average, Norway (28 MWh), Sweden (16 MWh), and Finland (14 MWh) significantly exceed it.

Although markets with high energy output may seem self-sufficient, their sustainability depends on consumption rates. In response to the looming threat of severe blackouts in 2022, measures were taken to curb energy usage, resulting in a notable decline. Across the EU, primary energy consumption dropped by 6.4% compared to 2019, with per capita usage standing at 40,195 kWh in 2022. Yet, disparities in energy consumption are evident among nations, with Norway, Luxembourg, Sweden, Finland, and Belgium emerging as the most voracious consumers.

Amid energy shortages, markets have pivoted towards bolstering internal energy production, prioritising domestic output. From 2019 to 2023, 58% of markets reduced their reliance on external energy imports. In 2019, merely 25% of markets were fully self-sufficient, producing ample energy to meet demand without imports. By 2022, this figure rose to 33%. Last year eight markets - Sweden (121%), Norway (113%), Czech Republic (112%), France (111%), Switzerland (109%), Romania (106%), the Netherlands and Spain (105%) - generate surplus energy. These energy-autonomous regions benefit from greater energy security compared to their counterparts, who are heavily dependent on imports and face potential risks of energy cost fluctuations.

Total energy production per capita & renewable energy



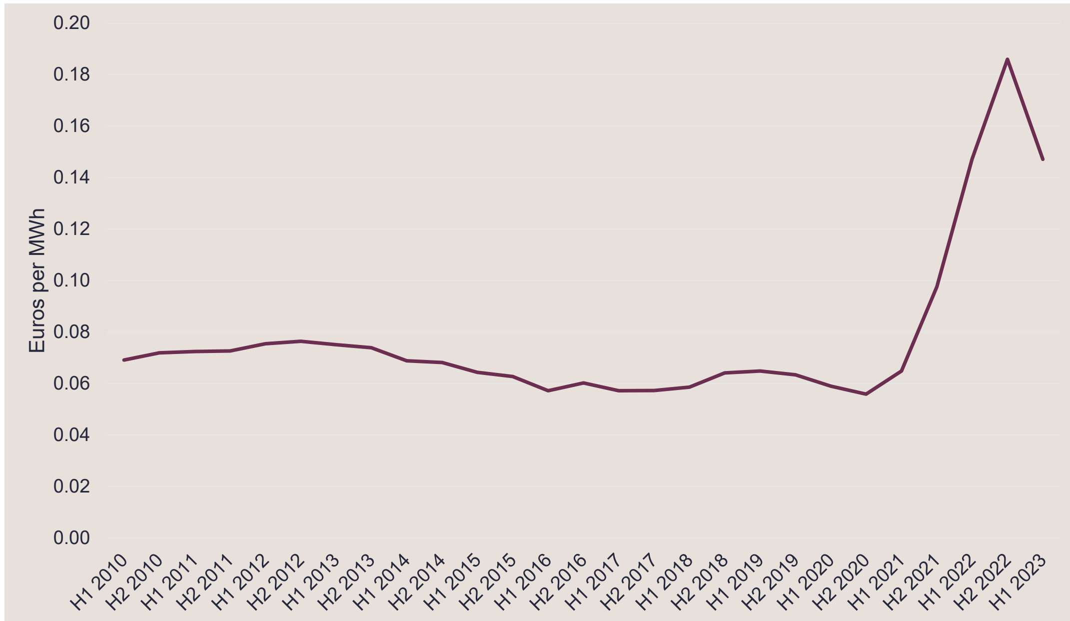
Source : Savills Research based on Ember

The cost of energy & price fluctuations

In the wake of their 2022 peak, energy prices started a downward trajectory last year. On average across Europe, they decreased by 21% between H1 2023 and H2 2023. Nonetheless, they persist at a level 51% higher than pre-crisis levels, with certain nations still experiencing hikes or yet to observe an inflexion in pricing, including Poland, the Netherlands, Ireland, Belgium and the UK.

Given the energy-intensive nature of data centres, the cost and volatility of energy prices greatly influence the strategic considerations involved in selecting new data centre locations, as they heavily impact operational expenses. The countries with the most competitive energy prices for industrial consumers with high voltage connections in Europe are Norway, Sweden, France, Portugal, and Greece, all boasting rates below €0.10 per kWh.

Average European electricity cost*



Source: Savills Research based on Eurostat / * Non-household consumption over 150 000 MWh, exclusing taxes and levies

Rising cities & alternatives

Due to growing concerns about power grid reliability, investors and operators are increasingly exploring markets beyond the FLAPD regions, where power restrictions can jeopardise new development projects. Our analysis highlights Nordic cities as a leading option because of their abundant supply of affordable green energy. Switzerland, France, and certain cities in Germany and Belgium also present viable alternatives. Yet, we expect the power grid to become a widespread concern across European countries in the short term.

In this evolving landscape, data centre operators are increasingly prioritising the integration of renewable energy sources, a trend that has become a significant factor in the approval process for new developments. In regions where green energy is scarce or the power grid is constrained, some operators are considering the construction of their own on-site renewable energy infrastructure, such as solar panel farms. This approach not only enhances energy independence but also provides greater security against central grid vulnerabilities, reducing risks during power outages or grid failures and ensuring uninterrupted operations. However, it's important to note that this option is typically feasible only for hyperscale data centres due to the substantial capital investment required.

Savills energy benchmark ranking

To establish where in Europe energy constraints are likely to have the least impact on new data centre development, Savills conducted a benchmark which ranks 46 European cities based on five metrics that assess energy availability, security, sustainability, cost, assumed consumption, as well as constraints on new data centre developments to identify optimal opportunities for expanding new data centre facilities. The various indicators have been ranked and weighted across the 46 cities.

The results of the benchmark do not determine the exclusive attractiveness of a given city to prospective data centre developers; it purely provides a macro guide to incorporate as part of their specific strategy.

Cities with limited power restrictions by central governments performed better in the ranking, as did markets with a high energy production per capita and a large share of renewable energy. These indicators, along with the cost of energy and energy autonomy, make up the final ranking.

Overall, medium size cities lead the benchmark and regional cities rank higher than their capital, where less demand for energy works in favour of new data centre developments.

Rank	City	Energy production per capita (MWh)	Energy autonomy ratio (%)	Percentage of renewable energy (%)	Energy cost* (Euros/Kwh)	DC power Constraint	Energy consumption (MWh)	Weighed grade
1	Malmo	15.67	96%	84%	0.080	None (or limited)	14,996,170	67%
2	Gothenburg	15.67	102%	33%	0.080	None (or limited)	9,019,208	67%
3	Stockholm	15.67	102%	33%	0.080	None (or limited)	7,767,551	67%
4	Oslo	27.76	118%	15%	0.052	Potential (Looming)	8,726,076	63%
5	Lausanne	7.94	83%	88%	0.142	Potential (Looming)	5,162,303	51%
6	Geneva	7.94	78%	44%	0.142	Potential (Looming)	4,652,676	51%
7	Zurich	7.94	77%	52%	0.142	Potential (Looming)	25,804,519	51%
8	Helsinki	14.32	111%	26%	0.142	None (or limited)	26,782,391	50%
9	Lyon	7.53	111%	26%	0.088	None (or limited)	18,728,656	46%
10	Marseille	7.53	111%	26%	0.088	None (or limited)	13,894,459	46%
11	Lille	7.53	111%	26%	0.088	None (or limited)	14,869,423	46%
12	Copenhagen	5.66	106%	52%	0.113	Partial (Specific conditions)	4,779,236	46%
13	Vienna	7.34	106%	52%	0.194	Potential (Looming)	9,385,253	45%
14	Paris	7.53	106%	52%	0.088	Partial (Specific conditions)	23,327,489	44%
15	Düsseldorf	5.98	106%	52%	0.144	None (or limited)	3,900,389	44%
16	Munich	5.98	83%	50%	0.144	None (or limited)	5,045,040	44%
17	Antwerp	7.05	73%	26%	0.136	None (or limited)	8,249,640	44%
18	Berlin	5.98	98%	44%	0.144	Partial (Specific conditions)	10,429,448	43%
19	Prague	6.99	88%	44%	0.142	None (or limited)	17,063,456	41%
20	Valencia	5.62	88%	44%	0.100	None (or limited)	22,441,419	41%
21	Barcelona	5.62	85%	77%	0.100	None (or limited)	2,248,838	41%
22	Porto	4.32	26%	76%	0.093	None (or limited)	3,818,144	41%
23	Lisbon	4.32	15%	92%	0.093	None (or limited)	6,743,088	41%
24	Madrid	5.62	99%	48%	0.100	Partial (Specific conditions)	9,678,245	39%
25	Athens	4.77	99%	48%	0.096	None (or limited)	9,984,539	38%
26	Utrecht	6.82	99%	48%	0.211	Partial (Specific conditions)	9,326,597	38%
27	Rotterdam	6.82	100%	99%	0.211	Partial (Specific conditions)	18,155,876	37%
28	Brussels	7.05	94%	27%	0.136	Potential (Looming)	8,295,679	37%
29	Riga	3.37	94%	27%	0.142	None (or limited)	2,408,885	36%
30	Frankfurt	5.98	94%	27%	0.144	Strong	3,604,303	36%
31	Luxembourg	1.67	94%	27%	0.142	None (or limited)	3,240,792	35%
32	Bucharest	2.98	94%	73%	0.138	None (or limited)	15,503,693	32%
33	Tallinn	4.84	94%	73%	0.142	None (or limited)	9,404,656	32%
34	Amsterdam	6.82	97%	50%	0.211	Strong	4,771,443	30%
35	Vilnius	1.97	98%	50%	0.162	None (or limited)	37,000,410	30%
36	Poznan	4.39	98%	50%	0.142	None (or limited)	30,757,334	27%
37	Katowice	4.39	98%	50%	0.142	None (or limited)	14,012,221	27%
38	Krakow	4.39	118%	69%	0.142	None (or limited)	32,679,197	27%
39	Warsaw	4.39	118%	69%	0.142	None (or limited)	18,818,176	27%
40	Rome	4.47	118%	69%	0.181	None (or limited)	23,286,809	26%
41	Milan	4.47	110%	63%	0.181	Partial (Specific conditions)	12,048,368	25%
42	Dublin	5.97	110%	63%	0.218	Strong	3,921,947	24%
43	Leeds	4.30	110%	63%	0.270	None (or limited)	1,126,500	22%
44	Manchester	4.30	94%	46%	0.270	None (or limited)	17,947,785	22%
45	Budapest	3.72	94%	46%	0.201	None (or limited)	5,115,719	14%
46	London	4.30	94%	46%	0.270	Strong	3,814,299	13%

Source: Savills Research / ** Non-household consumption over 150 000 MWh, exclusing taxes and levies

Tech Giants' Green Power

The imperative to address sustainability within the data centre realm has never been more pressing. As the world grapples with the challenges of climate change and resource scarcity, the environmental footprint of data centres has come under intense scrutiny. In spite of the impressive "greening" improvements made by the industry over the past decade, customers, regulators, investors and the public at large are increasingly demanding greater sustainability efforts from data centre providers and expect that these improvements can be verified.

Mandatory reporting to improve transparency

At the end of last year, the EU took decisive steps to introduce comprehensive directives targeting data centres. The Energy Efficiency Directive (EED) aims to reduce energy use in Europe by 11.7% by 2030 to help meet the EU Green Deal goal of a 55% cut in carbon emissions by that same date. Under the EED, starting on 15 May 2024, the first step will be mandatory reporting of energy use and emissions from data centres in the bloc, which are larger than 500kW. The requested data should notably encompass floor area, installed power, data volumes, energy consumption, PUE, temperature set points, waste heat utilisation, water usage, and use of renewable energy and cover the period starting from May 2023.

This reporting mechanism will provide crucial insights into data centre energy performance, enabling policymakers to devise targeted strategies for optimising energy consumption and reducing environmental footprint.

Simultaneously, the EU is laying the groundwork for establishing a comprehensive scheme aimed at rating the sustainability of data centres. This scheme aims to offer standardised metrics for assessing the environmental impact of data centres and empower consumers and stakeholders to make informed decisions based on sustainability criteria. By holding data centre operators accountable for their energy consumption and efficiency, the EU aims to accelerate innovation towards greener infrastructure, ultimately leading to reduced carbon emissions and mitigating the environmental impact of digital infrastructure.

In light of the latest Uptime Institute survey, this new regulation could catch a large number of data centre operators off guard. According to their Global Data Center Survey 2023, most colocation operators track established metrics such as power consumption and PUE. Only a minority of colocation providers report water use, carbon emissions, waste disposal schemes or equipment life-cycle data.

A glimpse into the industry's energy efficiency progress

While the industry is accommodating the ever-expanding demands of the digital age, significant advances in data centre performance have been made in recent years. According to the International Energy Agency (IEA), the period between 2015 and 2022 witnessed a staggering increase in internet users by 78%, global internet traffic by 600%, and data-centre workloads by 340%. Despite this exponential growth, the energy consumed by data centres saw a comparatively modest rise of only 20-70%. This remarkable improvement in efficiency can be attributed to a combination of factors.

One of the driving forces behind the improved energy efficiency within the data centre industry is Koomey's Law. This empirical observation states that the energy required to perform a fixed amount of computation has been halving approximately every two and a half years. This trend has been instrumental in driving down the energy consumption per unit of computational output, thereby contributing to overall energy savings in data centre operations.

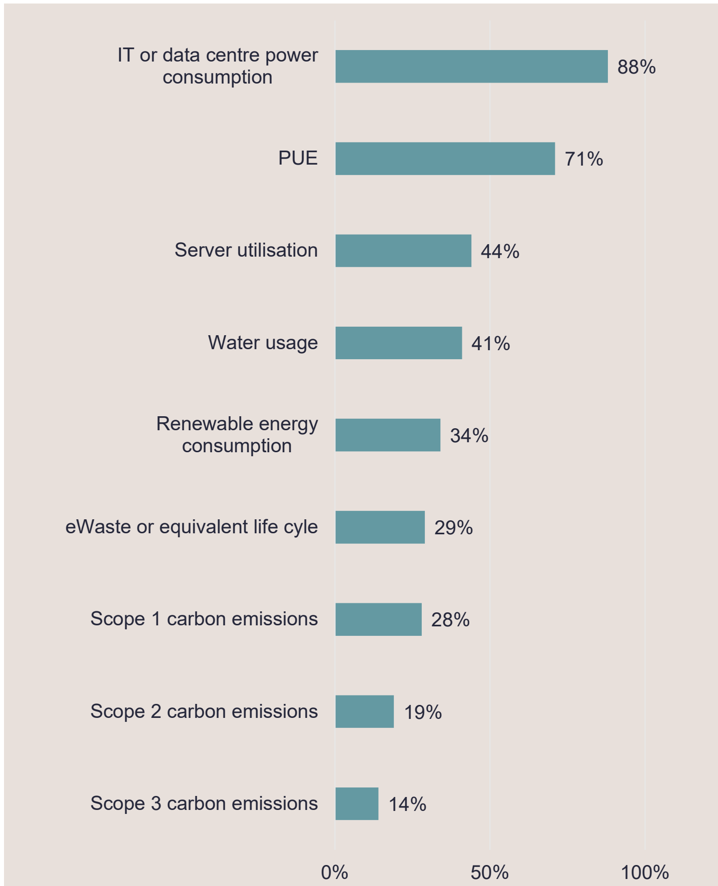
Moreover, as data centres have expanded in size and capacity to meet growing demand, there has been a shift in the distribution of energy usage within these facilities. Thanks to advancements in hardware efficiency and optimisation techniques, a greater proportion of energy is now allocated to computation. This resource optimisation has led to more efficient energy use within data centres, further bolstering their sustainability credentials.

Furthermore, the industry has embraced a continuous cycle of technology refresh in existing data centre facilities. Operators are investing in the deployment and utilisation of the latest and most efficient technologies, ranging from advanced cooling systems to energy-efficient server architectures. This proactive approach to infrastructure modernisation ensures that data centres remain at the forefront of energy efficiency, adapting to evolving demands and technological innovations.

A key metric used to measure the energy efficiency of data centres is the PUE rating. This metric represents the ratio of total energy consumed by a data centre to the energy consumed by its IT equipment. Over the years, there has been a notable reduction in PUE ratings across the industry. In Europe, for example, the average PUE has decreased from 1.74 in 2005 to a current average of 1.20. This downward trend underscores the industry's commitment to optimising energy usage and minimising environmental impact.

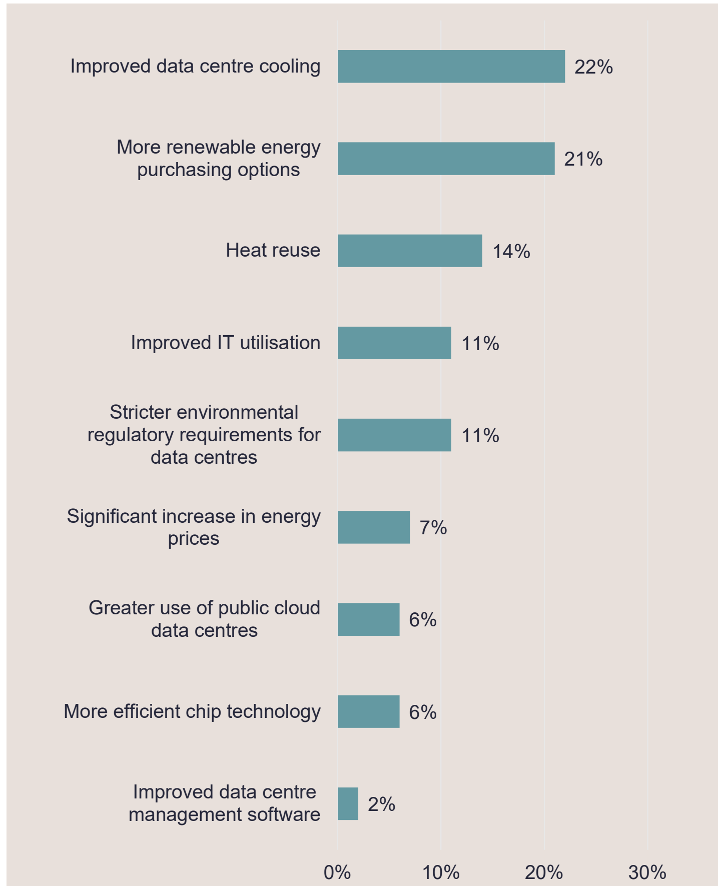
The adoption of sustainability initiatives in data centres is frequently motivated by financial considerations. By enhancing energy efficiency within facilities, operating costs are directly reduced, thereby increasing their appeal to tenants and concurrently decreasing carbon emissions. Innovative cooling designs that prioritise efficiency contribute to lower PUE, a factor that not only attracts customers but also contributes to cost savings. Insights from the Uptime Institute's 2022 data centre survey highlight the growing significance of improved cooling infrastructure and expanded options for renewable energy procurement as primary drivers of sustainability in colocation data centres.

Which IT or DC metrics do you compile and report for corporate sustainability purposes?



Source: Uptime institute Survey 2023 (N=716)

Which of the following will have the biggest impact on making the DC industry more environmentally sustainable in the next 3-5 years?



Source: Uptime institute Survey 2023 (N=207)

The significant role of tech giants in renewable energy mass-adoption

In recent years, large data centre operators have significantly embraced renewable energy sources to power their operations. By leveraging solar, wind, hydro, and other renewable resources, these operators are not only reducing their carbon footprint but also ensuring long-term energy resilience. Initiatives such as power purchase agreements (PPAs) with renewable energy providers and investments in on-site renewable infrastructure demonstrate a commitment to environmentally responsible practices while meeting the increasing energy demands of data centres.

The feasibility of powering data centres with renewable energy largely depends on local grid compositions and the availability of renewable generation infrastructure. Proximity to renewable energy assets and the existence of retail contracts for direct renewable energy consumption play pivotal roles in facilitating this transition. However, challenges arise in procuring sufficient firm renewable energy to fully sustain data centre operations around the clock. To address this limitation, many colocation providers have adopted alternative strategies, such as unbundled Renewable Energy Certificates (RECs), Guarantees of Origin (GOs), or virtual PPAs. These instruments enable businesses to claim a higher percentage of renewable energy and offset their emissions, albeit indirectly. Despite their appeal, these methods do not directly reduce emissions consumed by data centre operations. The Uptime Institute advocates for 24/7 matching PPAs as the most effective approach for directly funding local renewable projects. By engaging in long-term contracts with renewable energy producers, data centre companies not only secure a stable energy supply but also contribute to the expansion of renewable infrastructure.

The involvement of tech giants has significantly accelerated the adoption of renewable energy in data centre operations. Through PPAs, these companies ensure a reliable revenue stream for renewable projects, facilitating their development. According to BloombergNEF, the data centre industry collectively has added or will add 74 gigawatts of capacity through such agreements. Furthermore, tech companies actively participate in purchasing RECs, which financially support the creation of renewable capacity. Despite criticism regarding the discrepancy between claimed carbon neutrality and actual energy sourcing, RECs play a crucial role in incentivising renewable energy production.

In conclusion, by leveraging various financial instruments and strategic partnerships, data centre operators can not only reduce their carbon footprint but also drive the expansion of renewable energy infrastructure on a global scale.

European Data Centres | Tech Giants' Green Power

Heat reuse, in the heat of the moment

The record-breaking heat wave last summer in Europe, with parts of Greece, eastern Spain, Sardinia, Sicily, and southern Italy seeing temperatures above 45°C, put data centres' IT infrastructures to a test. Operators fought to provide adequate cooling to ensure uninterrupted connectivity. As global temperatures increase, the cooling systems in data centres must work harder to maintain a stable environment. This can result in higher energy consumption, leading to increased operational costs and an overall larger carbon footprint.

Data centres consume substantial energy, with a significant portion converted into heat. Traditionally, this excess heat, deemed waste, is expelled into the atmosphere, often entailing additional energy expenditure and water usage. However, emerging trends spotlight the potential to repurpose this waste heat, transforming it from a liability into a valuable resource. Efforts to recover waste heat from data centres present an attractive proposition, with the potential to supply thermal power for various industrial, commercial, and residential applications. Studies suggest that up to 90% of the energy utilised by data centre IT can be recuperated as heat, offering a substantial resource for global energy needs.

While the idea of repurposing heat generated by IT operations is attractive, several hurdles hinder its widespread adoption. Firstly, the thermodynamics and economics of waste heat recovery weigh heavily on the business case. Integrating heat reuse systems adds complexity to data centre planning and requires a significant upfront investment for equipment and infrastructure. Additionally, finding suitable applications for the typically low-temperature waste heat produced by data centres can be challenging, particularly in warmer climates where its use may not be feasible. Moreover, ensuring the reliability and resilience of heat reuse schemes poses a significant challenge.

Factors such as fluctuating customer demand, maintenance requirements, and potential disruptions can impact the dependability of heat recovery systems. While district heating networks offer some resilience, they may not always provide sufficient reliability for mission-critical applications.

The Nordic region stands out as a pioneer in waste heat recovery, where economic feasibility intersects with sustainability goals for businesses and policymakers alike. Leveraging their established district heating networks, Nordic countries facilitate partnerships between data centres and heat consumers. Such initiatives not only contribute to sustainability goals but also foster economic benefits and enhance public perception. Sweden has emerged as a global frontrunner in the adoption of large-scale waste heat recovery initiatives, particularly from data centres, boasting 30 facilities integrated into its district heating infrastructure. Denmark showcases a significant commitment, with approximately 60% of households already linked to district heating systems, facilitating the straightforward implementation of waste heat reuse projects. Similarly, Finland, among the Nordic nations, features widespread district heating networks, fostering a burgeoning market for waste heat utilisation.

Governments worldwide are increasingly showing interest in implementing waste heat recovery initiatives. Within Europe, the primary legislative instrument expected to wield significant influence is the recast of the EED. More specifically, article number 24, which mandates that EU members ensure waste heat recovery is incorporated into data centres with an IT capacity of 1 MW and above or demonstrate that such integration is technically or economically unfeasible. Moreover, data centre operators must disclose their efforts in regular reporting using the Energy Reuse Factor (ERF) metric. In addition to the EED, some European states, including Denmark, Germany, the Netherlands, and Norway, have implemented their own measures.

European Data Centres | Tech Giants' Green Power

Sustainability hurdles; balancing environmental goals with financial realities

Improving sustainability performance poses significant challenges for colocation data centre providers. A key obstacle lies in the limited control they have over the servers, the primary consumers of energy within their facilities. Unable to consolidate workloads or deploy power management software, providers are compelled to focus primarily on reducing the environmental impact of facility operations.

Design decisions hold immense weight, particularly for older sites burdened with outdated cooling infrastructure and high Power Usage Effectiveness (PUE) metrics. Retrofitting these legacy sites is not only expensive and time-consuming but also risks disrupting operations. Moreover, operators in regions with high carbon intensity grids face financial burdens, as they must either invest in renewable energy procurement or purchase RECs to mitigate emissions.

The greening of the industry demands substantial investment, posing a significant hurdle for providers striving to enhance their sustainability performance.

Major European data centre waste heat recapture applications

Application	Organisation	Location	Type of data centre
Commercial / residential heating via district	atNorth	Kista, Sweden	Colocation
	Stack Infrastructure	Oslo, Norway	Colocation
	Amazon Web Services	Dublin, Ireland	Hyperscale
	Meta	Odense, Denmark	Hyperscale
	Yandex	Mäntsälä, Finland	Hyperscale
	H&M	Stockholm, Sweden	Enterprise
	Volkswagen Financial Services	Braunschweig, Germany	Enterprise
	Nikhef Housing	Amsterdam, Netherlands	High-performance computing
Direct commercial /residential heating	Cloud&Heat	Frankfurt, Germany	Edge
	BIT	Ede, Netherlands	Colocation
Agriculture	Equinix	Paris, France	Colocation
	Microsoft	Middenmeer, Netherlands	Hyperscale
	Google	Middenmeer, Netherlands	Hyperscale
Heating swimming pools	Deep Green	Exmouth, UK	Edge
	Digital Realty	Paris, France	Colocation
	NorthC	Aalsmeer, Netherlands	Colocation
Commodity dehydration: wood pellets	EcoDataCenter	Falun, Sweden	Colocation / High-performance computing
Aquaculture: Trout farming	Green Mountain	Telemark, Norway	Colocation
Lobster farming	Green Mountain	Stavanger, Norway	Colocation
Algae farming	Scale up	Berlin, Germany	Colocation / Cloud
	Windcloud	Enge-Sande, Germany	Colocation

Source: Uptime Institute

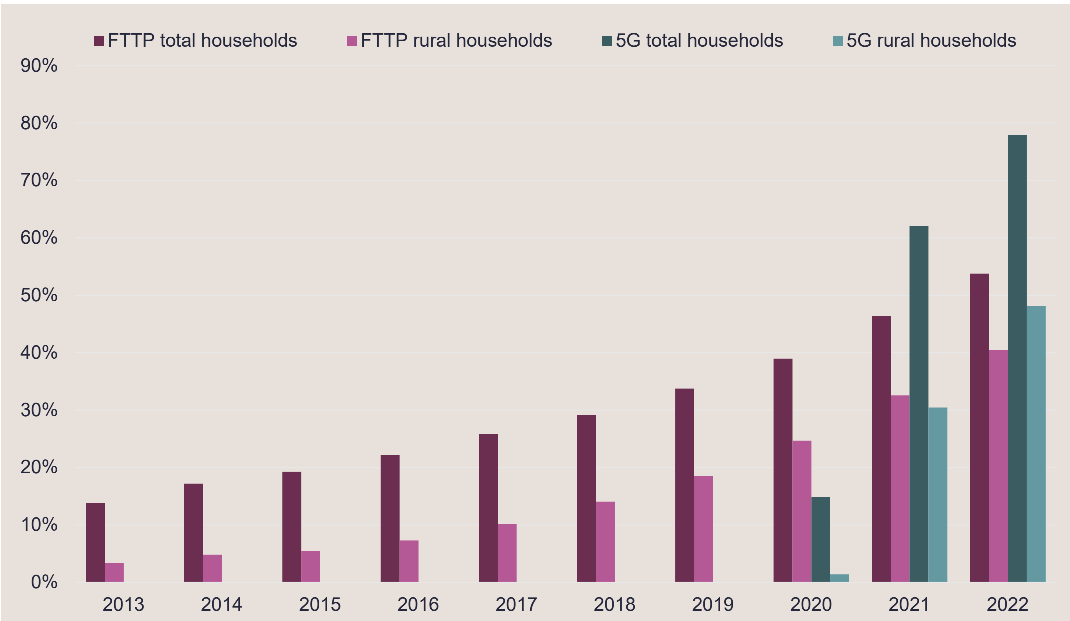
Extensive Infrastructure Deployment Plans

The EU Digital Decade Policy Programme

In the wake of the pandemic, which drove the necessity for digital adaptation across various sectors, the EU embarked on a robust commitment to lead digital transformation. Taking centre stage in this effort is the Digital Decade Policy Programme (DDPP), an extensive initiative unveiled by the EU to map out Europe's digital future. The primary objective of the DDDPP is to expedite Europe's digital evolution by nurturing advancements in critical digital domains and establishing targets to be met by 2030. These targets span across four fundamental pillars: bolstering digital infrastructures, enhancing digital skills, promoting digitalisation in business, and advancing digitalisation in public services. As outlined by the Joint Research Centre (JRC), which tracks EU investments aligned with the Digital Decade objectives and their distribution across all Digital Decade targets, the primary EU-level funding mechanisms allocate over €165 billion to drive the Digital Decade objectives forward. This represents an unparalleled investment in digitalisation aimed at accelerating our society's digital transformation, with a notable 18.2% of this budget earmarked for infrastructure development.

Over the past three years, significant strides have been made in implementing infrastructure projects, particularly in the extensive deployment of fibre-to-the-property (FTTP) and 5G networks across both urban and rural regions. These initiatives aim to ensure dependable network connectivity for individuals and businesses alike. Notably, between 2020 and 2022, the coverage of FTTP in EU-28 households surged from 25% to 40%, marking a substantial increase compared to the previous five-year average growth rate of 4%. Simultaneously, the proportion of EU-28 households with access to 5G saw an exponential rise, jumping from 15% to an impressive 78% within the same timeframe.

EU-28 FTTP & 5G coverage



Source : Savills Research based on European Commission

Diving deep: Tech giants finance submarine cable ventures

Simultaneously, the expansion of submarine cable infrastructure is experiencing exponential growth. Serving as the internet's backbone, submarine cables facilitate a staggering 98% of international internet traffic, traversing approximately 521 active submarine cables spanning over 1.4 million kilometres globally - almost four times the distance from the Earth to the Moon. Consequently, any new submarine cable holds strategic importance for the future evolution of data centre facilities. The period between 2023 to 2025 is witnessing an unparalleled surge in new submarine cables, with a collective value reaching a remarkable $10 billion. These cables, extending over 300,000 kilometres across 78 systems, represent the most substantial growth phase in over twenty years. With the escalating demand for bandwidth among content providers, some entities have transitioned from being mere consumers of wholesale capacity to actively owning and investing in transport network infrastructure. This shift commenced with Google's investment in the Unity cable consortium in 2010, followed by Meta, Microsoft, and more recently, Amazon, all of whom have either directly invested in or become major pre-sale purchasers of new submarine cable systems. Notably, Google has invested in 29 systems, while Meta has invested in 15.

Shifting focus to the European landscape, over 200 submarine cables currently land in Europe, interconnecting the continent with the Middle East, Africa, APAC, and the Americas, spanning approximately 477,000 kilometres. Additionally, twenty more submarine cables, accounting for 10% of existing infrastructure, are due for completion by 2027, adding roughly 150,000 kilometres of cables. Italy, Greece, France, Portugal, Cyprus, Spain, Norway, Sweden, and the UK stand to directly benefit from these new connections. While Marseille retains its pivotal role as a cable landing site in the Mediterranean Sea, the introduction of new landings in Barcelona, Genoa, and Crete is bolstering network resilience and connectivity throughout the region.

European submarine cables planned

Route	Cable name	Completion date	Length (km)	Capacity (Tbps)	European landing countries
Europe-Africa	2Africa	2024	45,000	180	France, Greece, Italy, Portugal, Spain, UK
Europe-Africa	Africa-1	2024	10,000	NA	France
Europe	ANDROMEDA	2024	NA	NA	Cyprus, Greece
Europe	Anjana	2024	7,121	480	Spain
Europe	Apollo East and West	2024	670	46	Greece
Europe	Aurora	2024	NA	3,052	Denmark, Germany, Sweden
Europe	Beaufort	2024	NA	NA	Ireland, UK
Europe-MEA	CADMOS-2	2024	250	NA	Cyprus
Europe	Iceni	2024	NA	NA	Netherlands, UK
Europe	Piano Isole Minori	2024	830	NA	Italy
Europe	Eastern Light Sweden-Finland II	2025	NA	NA	Finland, Sweden
Europe-Asia	India Europe Xpress (IEX)	2025	9,775	210	Greece, Italy
Europe	Medusa Submarine Cable System	2025	8,760	480	Cyprus, France, Greece, Italy, Portugal, Spain
Europe	N0r5ke Viking 2	2025	810	NA	Norway, Sweden
Europe	Olisipo	2025	110	4,300	Portugal
Europe-Asia	SeaMeWe-6	2025	21,700	126	France
Europe	Unitirreno Cable	2025	1,200	480	Italy
Trans-Atlantic	Leif Erikson	2026	4,200	NA	Norway
Trans-Atlantic	Nuvem	2026	NA	NA	Portugal
Trans-Atlantic	Far North Fiber	2027	17,000	NA	Ireland, Norway

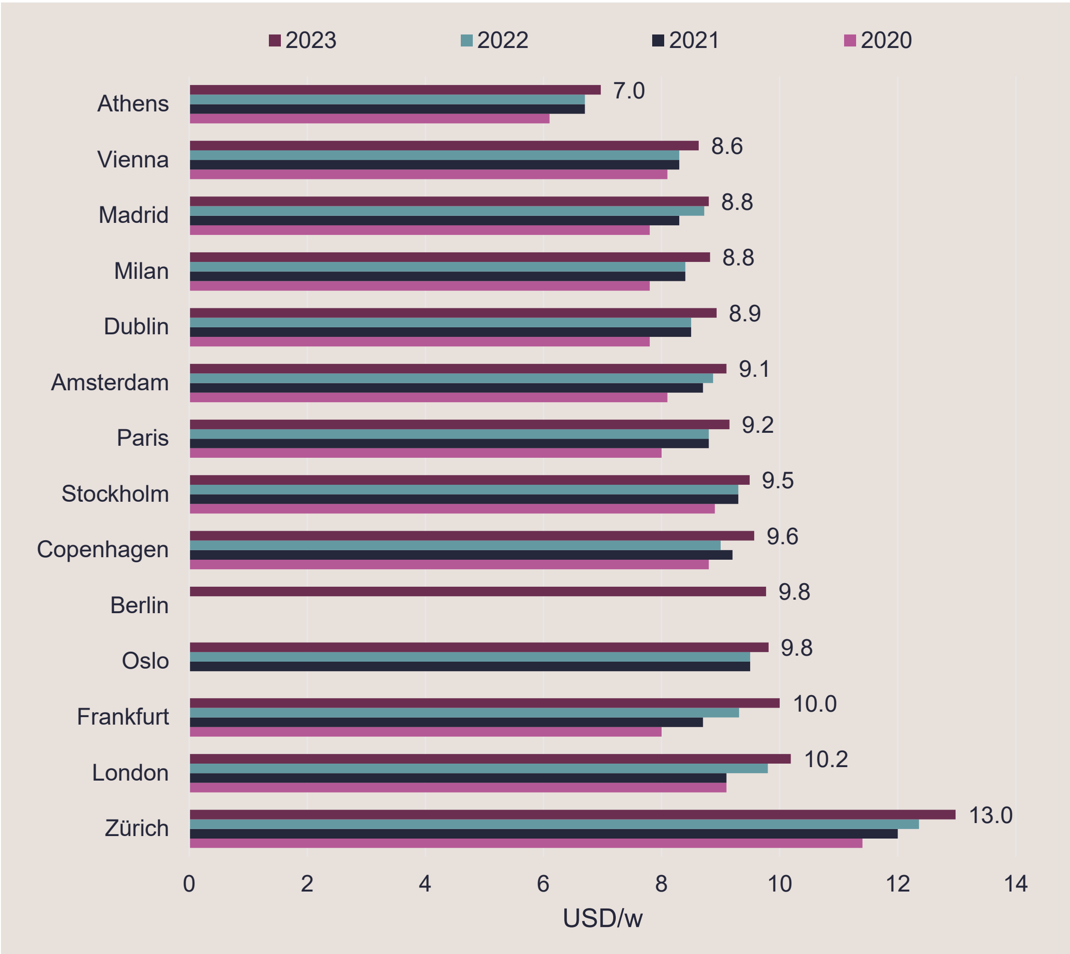
Source : Savills Research based on TeleGeography

Costs On The Rise

Greenfield data centre construction costs have risen notably since last year, propelled by multiple factors, including supply chain limitations, inflationary trends, labour scarcities, and land availability challenges. Globally, they surged by over 6% year-on-year (YoY) compared to 2022. In Europe, the average construction costs for 2023 surged by 6.5% annually, reaching $9.1 million per MW (€8.4 million), as reported by Turner & Townsend's latest findings. Zurich remained Europe's most expensive market for new data centre development, followed by London and Frankfurt, positioning it as the second-costliest globally, following Tokyo. Across European jurisdictions, building costs range between £7 million and £13 million per MW of commissioned IT load. This includes land, the building shell, electrical systems, HVAC, mechanical and cooling systems, fire security systems, and the building fit-out, as detailed in the table on the left.

Building costs vary mostly based on power density, redundancy, and scale. High-density spaces require additional cooling capacity, resulting in higher costs. Redundancy involves duplicating critical components such as backup generators, uninterruptible power supplies (UPS), power distribution units (PDUs), and cooling systems to mitigate downtime. As the level of redundancy architecture increases (referred to as N, N+1, N+2, 2N, and 2N+1), constructing costs rise. Hence, with redundant components being a major factor in Tier certifications, the costs of fitting out a data centre rise to achieve higher tier certification. According to Dgtl Infra, the cost of constructing and fitting out a Tier IV data centre can be 25% to 40% more than a Tier III data centre and double that of a Tier II data centre.

European construction costs



Source : Turner & Townsend

Conversely, scale offers a cost advantage. Large-scale data centre developments benefit from greater purchasing power, resulting in more cost-effective procurement of electrical systems and HVAC components. Significant savings can also be realised through brownfield redevelopment projects. For instance, QTS Realty Trust has repurposed numerous existing real estate assets, reporting a 10% to 15% cost advantage from redeveloping these buildings.

Exploding demand, combined with escalating energy expenses and construction costs, has caused a significant surge in average asking prices across European colocation markets. Since the onset of 2022, there has been an average uptick of 36% for 4 kW leases, 47% for 10 kW leases, and 51% for 100 kW leases. On average, across the major data centre hubs in Western Europe, they range between $427 and $460 per kW depending on location and power capacity required (4 kW, 10 kW, and 100 kW leases).

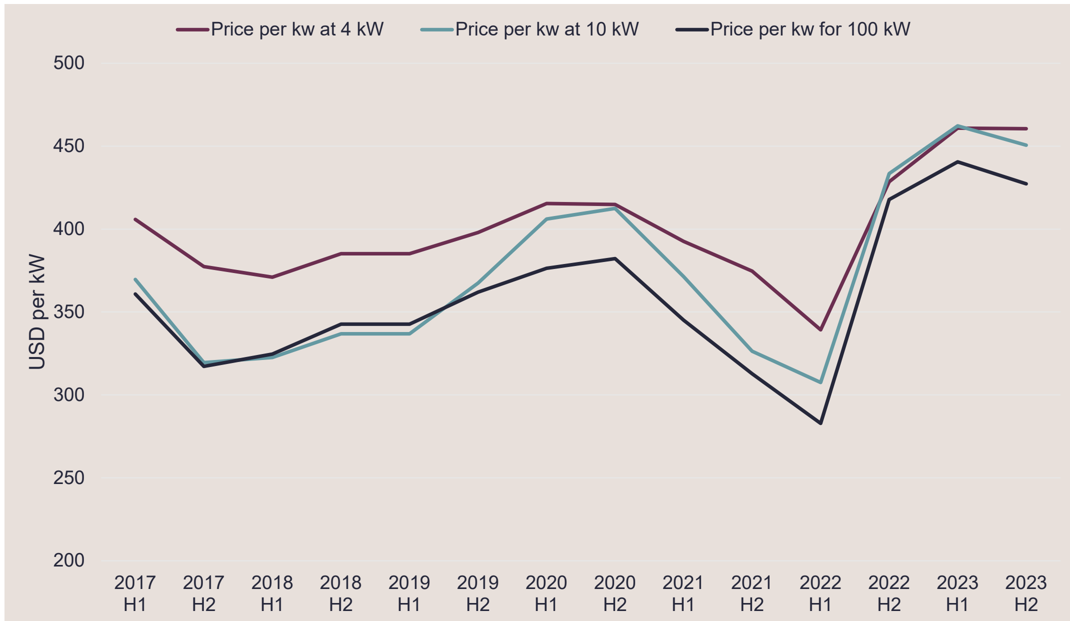
Looking ahead to 2024, we anticipate a continued rise in rents due to persistent high energy costs, escalating construction expenses transferred to clients, as well as the insatiable demand for data centre facilities amidst a shortage of available sites for new schemes. However, the anticipated price fluctuations are expected to be significantly less pronounced compared to the steep increases witnessed over the past 18 months. We anticipate asking rent to rise by 5% to 8% YoY in the next three years.

Breakdown of construction costs

Cost components	Low cost/MW	High cost/MW
Land	280,000	859,031
Building shell	896,000	1,832,599
Powered shell	**1,176,000**	**2,691,630**
Electrical systems	3,136,000	5,268,722
HVAC, mechanical, cooling	1,400,000	2,462,555
Fire suppression	168,000	286,344
Building fit-out	1,120,000	2,290,749
Tech requirements	**5,824,000**	**10,308,370**
Total	**7,000,000**	**13,000,000**

Source : Savills Research based on Dgtl Infra

Average European rental costs



Source : Savills Research based on TeleGeography

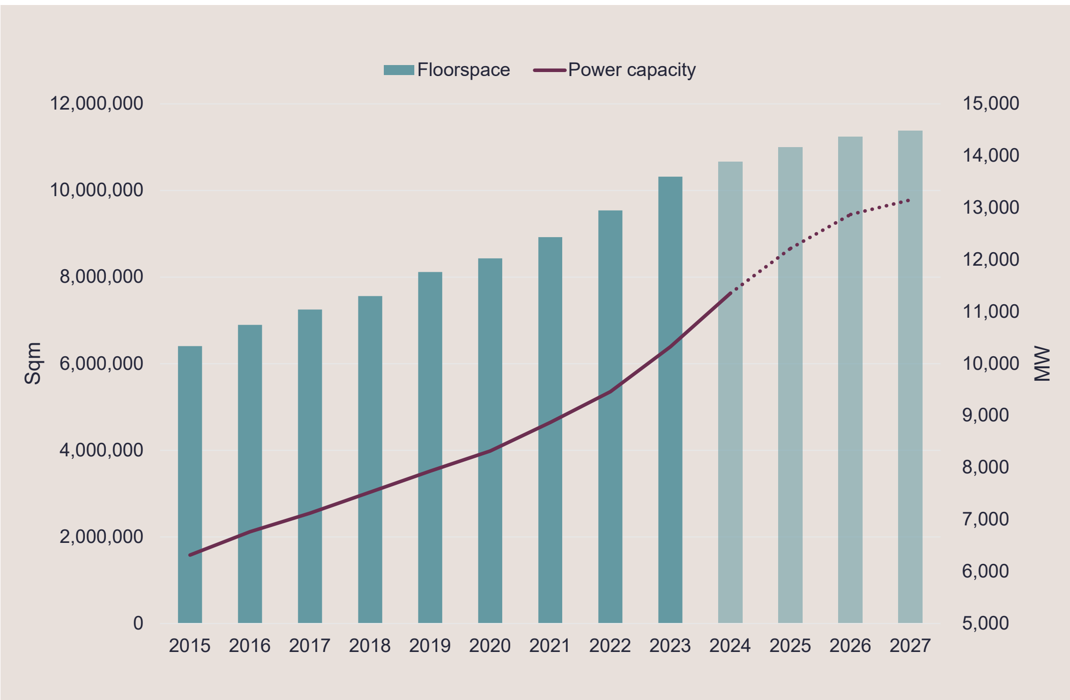
Rising Supply But Still Struggling To Keep Pace

In total across Europe, there are currently slightly over 1,350 data centre facilities. These comprise 67% colocation sites, 18% wholesale, 8% reseller, and 7% proprietary establishments. This means there are 1,250 commercial data centres (excluding proprietary data centres) representing approximately 10 million sqm of space and around 10,300 megawatts. The majority of these facilities are concentrated in Western European nations, which collectively hold 66% of the continent's data centre power capacity. The FLAPD markets – Frankfurt, London, Amsterdam, Paris, and Dublin – particularly stand out in this regard.

Recent years have witnessed a remarkable surge in new data centre developments, with over 129 completed commercial projects across Europe in the last three years alone, contributing over 2,000 MW in power capacity. Looking ahead, we anticipate an additional 94 European commercial data centre schemes planned in the next three years, adding approximately 2,800 MW. With these new developments in the pipeline, the European data centre power capacity is projected to rise to approximately 13,100 MW by 2027.

The majority of upcoming data centre capacity due to be delivered in the next four years remains concentrated in the FLAPD markets, comprising 65% of the total data centre pipeline. This concentration is due to the length of data centre planning processes, typically spanning around 24 months for permit, with a year for planning, and an additional year for construction. However, future supply in these markets is anticipated to be limited due to emerging laws and policies related to energy consumption and sustainability and high land and construction costs, posing increasing challenges for data centre development. Hence, an increasingnumber of new locations such as Prague, Genoa, Berlin, Munich, Düsseldorf, Milan, Cambridge, and Manchester are targeted for new projects.

European data centres' power capacity and floorspace



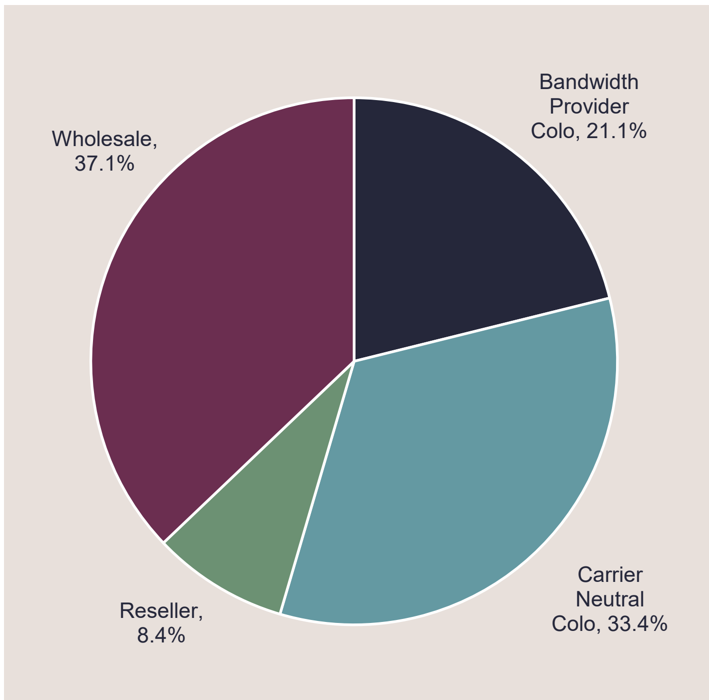
Source : Savills Research based on TeleGeography

European Data Centres | Rising Supply But Still Struggling To Keep Pace

According to Data Center Dynamics (DCD), data centres manage 97% of global IP traffic. Considering this and the expected rise in internet bandwidth usage, European data centre capacity will need to triple by 2027, reaching approximately 22,700 MW to support the increased bandwidth. This highlights a significant gap in the planned infrastructure, which is projected to provide only 13,100 MW by 2027, falling short of the anticipated demand. However, it is important to note that this projection does not consider future technological advancements that could improve data centre efficiency and increase their power capacity.

Despite numerous mergers and acquisitions within the sector, the European data centre market remains highly fragmented. There are currently 233 colocation data centre operators spread across Europe, with the top 10 collectively controlling 35% of the continent's total data centre power capacity. Digital Realty leads the pack with 960 MW, closely trailed by Equinix at 640 MW. With an increasing number of non-specialists seeking to enter the market, such as Segro's plan to build 24 sites in Europe, the market is expected to remain fragmented in the next four years.

Type of operators



Top ten largest operators in Europe

#	Name	Type of operator	Power capacity MW	% Total
1	Digital Realty	Wholesale	946	9.2%
2	Equinix	Carrier Neutral Colo	553	5.4%
3	NTT Global Data Centers	Bandwidth Provider Colo	450	4.4%
4	3data	Carrier Neutral Colo	295	2.9%
5	CyrusOne	Wholesale	288	2.8%
6	Vantage Data Centers	Wholesale	251	2.4%
7	Global Switch	Wholesale	223	2.2%
8	DATA4 Group	Wholesale	211	2.0%
9	Rostelecom Data Centers	Wholesale	205	2.0%
10	EdgeConneX	Wholesale	180	1.8%

Source: Savills Research based on TeleGeography

European Data Centres | Investors' Increasing Focus On Data Capitalisation

Investors' Increasing Focus On Data Capitalisation

While no sector is completely shielded from macroeconomic headwinds, the data centre industry benefits from secular and non-cyclical growth. Despite the challenging economic environment leading to increased caution among industry participants, the data centre sector has demonstrated resilience. Indeed, with its mission-critical role and strong customer dependency inherent to the sector, data centres appear well-positioned to weather future uncertainties.

In 2023, the global data centre M&A market experienced a slight decline in value, totalling $36.6 billion compared to $44.6 billion in 2022, marking an 18% decrease. This dip can be primarily attributed to the absence of large transactions surpassing $10 billion, which were prevalent in previous years. In 2022, two significant M&A deals took place, preceded by three in 2021, significantly elevating the annual investment value to unprecedented heights. Last year, the largest investment was the $7 billion joint venture between Blackstone and Digital Realty, aimed at developing four hyperscale data centre campuses across three metro areas spanning the American and European continents. Among other significant acquisitions, Brookfield Infrastructure and Ontario Teachers' acquired Compass Datacenters from RedBird Capital Partners and Azrieli Group for $5.7 billion, KKR purchased a 20% stake in Singtel's Regional Data Centre Business in Asia valued at $5.7 billion, and Brookfield acquired the European data centre portfolio Data4 from AXA IM for $3.8 billion.

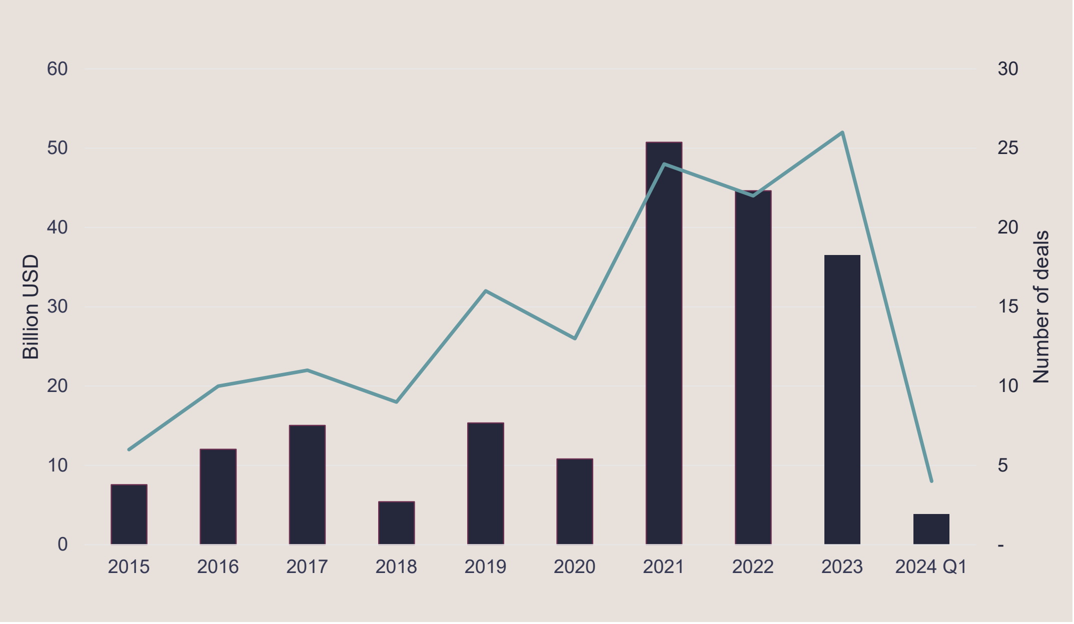
The debt market slowdown has impacted high-value M&A transactions, yet there is a rising trend towards minority stakes and smaller deals. Hence, 26 M&A deals were transacted last year, against 22 in 2022 and 24 in 2021, witnessing the sector's resilience. Data centres are increasingly perceived as secure long-term investments with strong potential returns (typically 10%+), leading to heightened sponsor interest. Private equity (PE) or PE-backed operators have dominated transactions since 2021, with private transactions taking some major data centre players out of the public market. Financial sponsors, including PE funds, real estate funds, and infrastructure investors, have been instrumental in the industry's growth, providing both capital and strategic guidance..

Indeed, building and managing data centres involve substantial costs. Moreover, data centres require room to adapt to evolving server technologies, notably AI and prioritise energy efficiency in their designs. Predicting revenue growth proves challenging in certain markets, particularly at scales below 30 MW, making new schemes potentially economically unviable. Even hyperscalers, with their extensive capital expenditure capabilities, encounter hurdles in expanding their fleets as they cannot swiftly establish a presence everywhere whilst they need to expand to meet the required scale to achieve profitably. This pursuit of scale has led the industry to open up to private equity investments.

Traditionally, infrastructure investors have been drawn to capital-intensive industries. Still, the substantial capital requirements are prompting larger operators to explore more creative funding ways at a time when capital is slightly less abundant. Consequently, consortium-based deals have become more common, albeit sometimes resulting in longer closure times. Another noteworthy trend recorded over the past 18 months is the increase in investments within the vertical data centre ecosystem, particularly in supply chain solutions such as innovative power solutions. This trend is driven by the growing global demand for utilities struggling to meet increasing data centre needs.

Due to the long-term interest rate hike and the high cost of debt, prime data centre yields have softened slightly by approximately 50 to 70 basis points in the last 12 months. On average, in the major Western European data centre hubs, prime yields currently range between 5.0% and 6.0%. We expect prime yields will remain stable in the next six months, notably thanks to the expected decline in central bank rates across Europe, and may even harden toward the end of the year as strong competition between investors is likely to put upward pressure on pricing.

Global value of data centre M&A

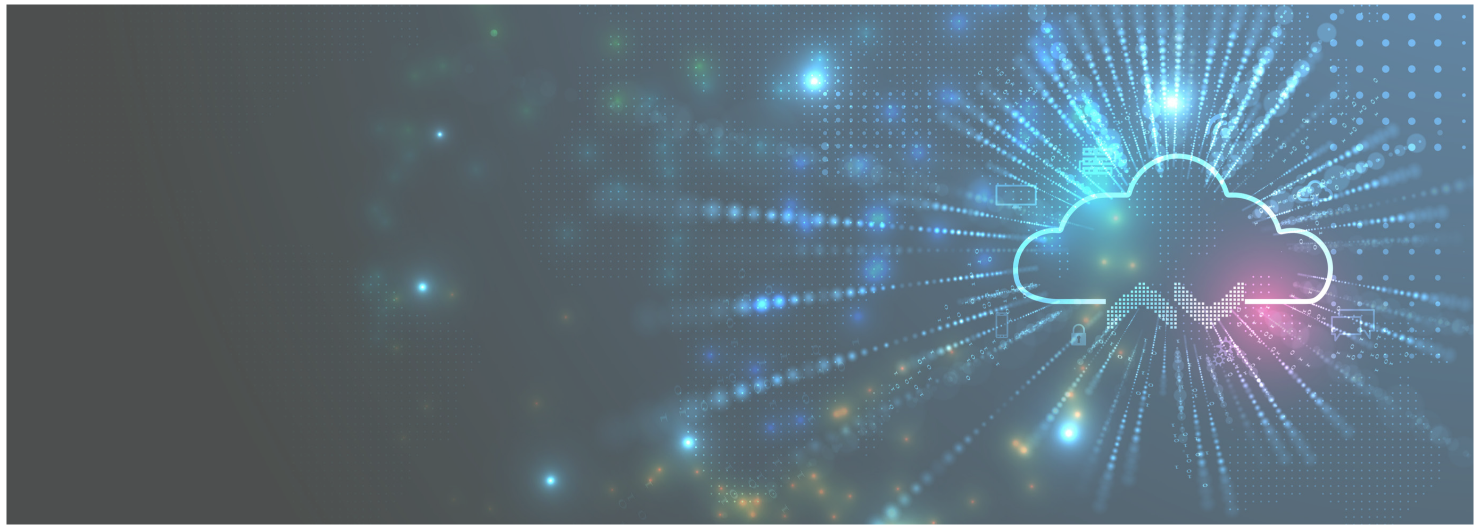


Source : Savills Research based on Dgtl Infra

Prime yields

Prime yields in Western Europe	
2018	5.0% to 7.0%
2019	4.9% to 6.6%
2020	4.5% to 6.0%
2021	4.0% to 5.0%
2022	3.6% to 4.5%
2023	4.3% to 5.5%
2024 Q1	5.0% to 6.0%

Source : Savills Research



Conclusion & Outlook

The European data centre market is poised for significant growth in the coming years, with forecasts indicating a substantial increase in demand. Total international bandwidth usage is projected to rise by an impressive 31% compound annual growth rate (CAGR) until 2030. This growth is expected to be evenly spread across Europe, primarily driven by the significant impact of artificial intelligence (AI) on the industry. The European AI market is forecasted to grow at a robust annual rate of 15.9% (CAGR 2024-2030), serving as a key driver for the surge in data centre demand.

However, amidst this rapid growth, the industry faces several challenges. Energy supply and strains on power grids will remain significant issues for at least the next 12-24 months, necessitating innovative solutions such as on-site energy production to maintain operational efficiency. Additionally, sustainability constraints and regulatory frameworks are expected to expand, leading to a shift towards more sustainable practices and technologies.

This transition will likely encourage a move towards a more decentralised network infrastructure, focusing on optimising energy usage and minimising environmental impact, especially given the location-agnostic nature of AI. Certain regions, such as Nordic cities and tier 2 cities across Europe, are emerging as key hubs for data centre development, benefiting from abundant renewable energy sources and supportive regulatory environments.

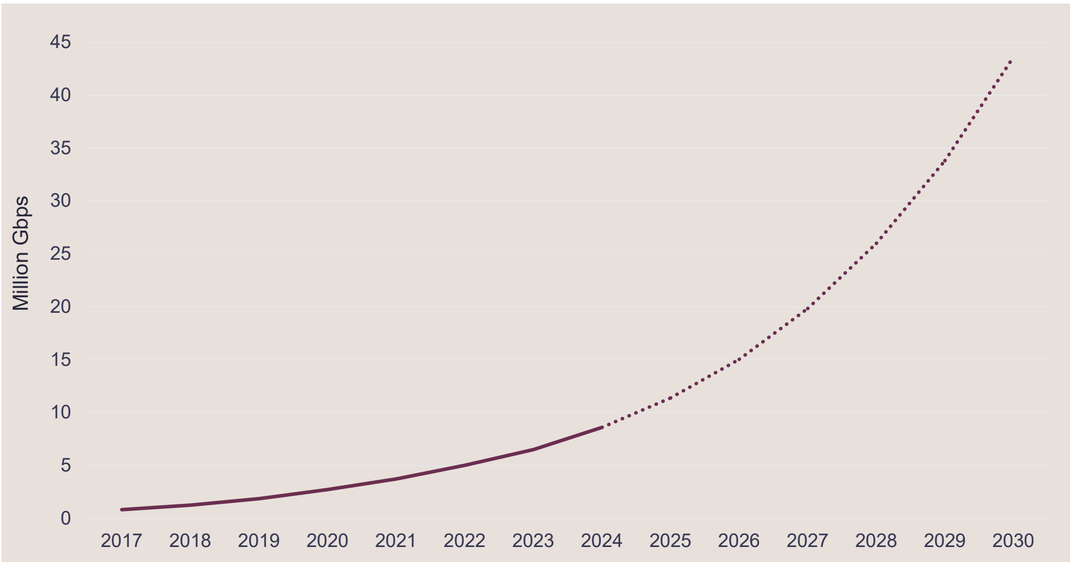
The pace of infrastructure growth and improvement is expected to accelerate, as evidenced by significant submarine cable projects and data centre schemes in the pipeline for the next three years. With 51 new European data centre projects due to be delivered in the next four years, totalling approximately 1,300 MW, the European data centre power capacity is projected to reach around 12,400 MW by 2027, although this remains below the growth of total international bandwidth projections.

Hence, despite the high number of data centre deliveries expected until 2028, the European market is expected to remain largely undersupplied across all European jurisdictions. This is likely to result in continued rises in building and rental costs, reflecting the increasing demand for data centre facilities.

Given the combined challenges of energy infrastructure, sustainability initiatives, scale expansion, and mitigating obsolescence risk, the industry will require significant capital expenditure (CapEx). As a result, rising private equity flows are anticipated in the market as the industry seeks to invest in its core business. Improved transparency due to new mandatory reporting EU regulations is likely to attract a growing number of investors seeking opportunities in this burgeoning sector, thereby increasing market liquidity. The strong fundamentals of the market are also expected to further drive consolidation and M&A strategies, making the market less fragmented.

Prime yields are expected to remain stable for most of the year, with a slight inward movement towards the end of the year as market dynamics evolve.

Used international bandwidth in Europe



Source : Savills Research based on TeleGeography

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