EightAdvisory

European Data Centres

Powering growth in the age of AI – Challenges and opportunities

October 2025

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8 EIGHT INTERNATIONAL

Executive Summary – Our view on market themes

*Europe is mobilising over **€350B** for AI and data centre infrastructure, with a plan to triple today's capacity by 2032, but achieving this will depend on overcoming material grid, power, and permitting constraints*

Supply and demand dynamics in FLAPD and secondary markets

Overall, both major European markets (FLAPD: Frankfurt, London, Amsterdam, Paris and Dublin) and secondary markets are seeing a rising demand coupled with supply constraints leading to declining vacancy. Growth in **new capacity** has been **highest in megawatt (MW)** terms in **FLAPD**, yet **secondary markets** are seeing **higher CAGR** growth rates[1]. Yet, at some point as AI-adoption and demand for AI-inferencing increases, this may cause a shift in demand from secondary markets back to FLAPD given the latter's proximity to end-user demand.

Acceleration of hyperscale and AI-led demand

Across Europe, demand from AI adoption is likely to see forecast increases in demand for **high performance computing (HPC)** data centres grow at 20% per annum[2]. Operators are having to respond to this coming wave of demand by upgrading existing facilities and in many cases building new DCs with increased rack densities, more advanced chips and cooling, as well as larger storage and campus requirements.

Europe's AI infrastructure investment ambitions

In line with the EU's desire to lift overall competitiveness and growth outlined in various publications including the Draghi report, over **€350B[3]** in **investment targets** for data centres and AI infrastructure has been pledged, including the lofty goal to **triple existing 2025 data centre capacity** by 2032.

Power and grid constraints hindering new DC Investment

Yet, meeting these ambitious targets will require power generation and more importantly, transmission capacity. **Grid capacity in Europe**, as we outline further in this paper, is likely to represent a material **constraint** to new European DC investment, with ageing electrical grids and long connection wait times, which in some markets sometimes exceed 10 years.

Planning delays are widening the gap between ambition and delivery

Planning cycles for a new greenfield data centres are long across some European markets and represent a material constraint to adding new capacity and must be considered by investors when determining which markets in Europe are best placed for new DC build.

Markets poised for the next wave of DC development

Given the above challenges, we have outlined later in this paper a framework for both investors and operators **outlining which markets in Europe** in our view, are **best placed** for **future DC investment**.

1. CBRE
2. Mordor Intelligence
3. European Union - Invest AI (€200B) and EU AI Champions (€150B) initiatives utilising a mix of public and private capital funding

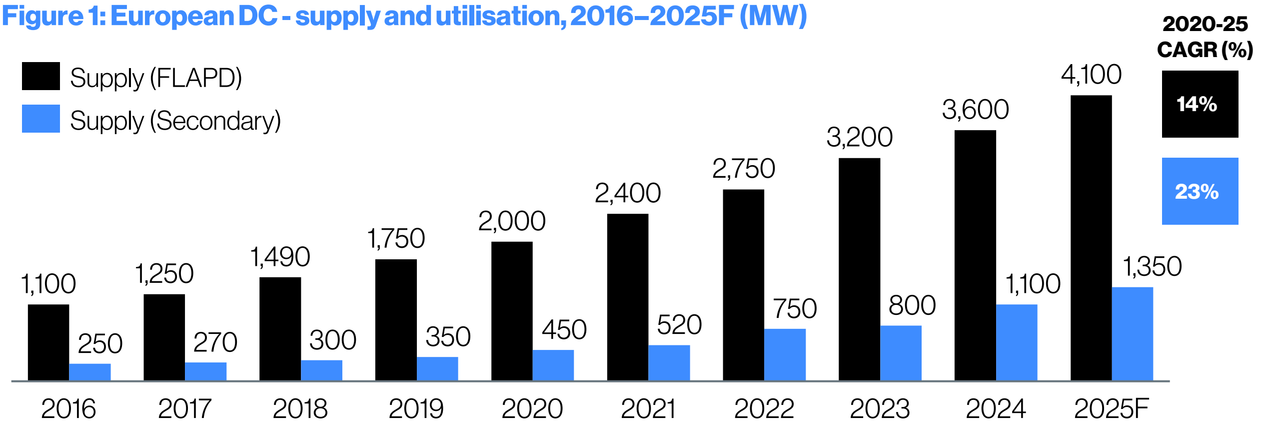
Summary

Market dynamics and trends

European Data Centres – demand and supply dynamics (1 of 3)

FLAPD markets continue to see the highest volume of new DC capacity, yet the rate of growth is lower than secondary markets. FLAPD accounts for 62% of European DC capacity today, which is expected to fall to 51% by 2035.

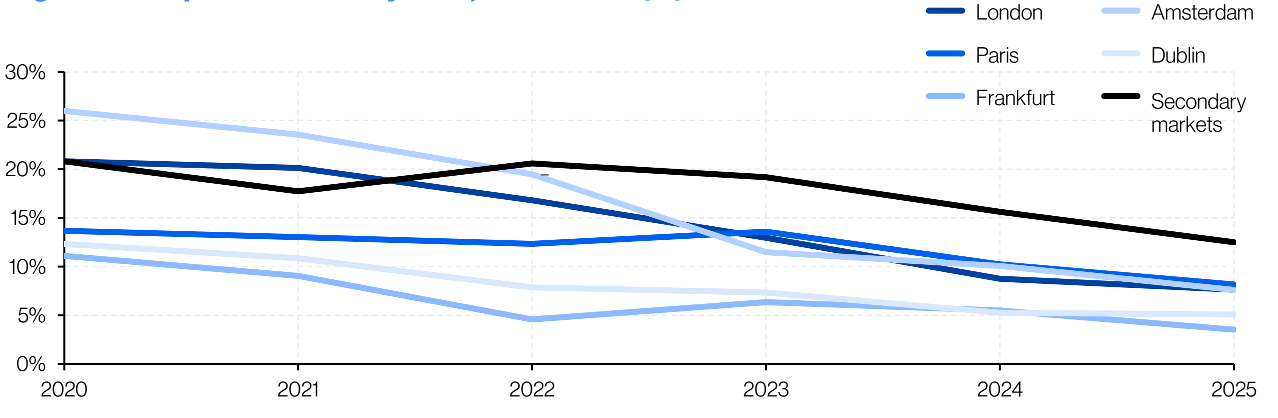
Figure 1: European DC - supply and utilisation, 2016–2025F (MW)



Source: CBRE

Over the past 5 years, growth in data centre capacity supply in absolute MW terms has been highest in **FLAPD,** yet the rate of growth in supply at 14% per annum is lower than the **growth in secondary markets**[1] which have grown at 23% per annum, albeit off a lower base. Growth in secondary markets has been driven by the availability of lower-cost land and power availability, the latter of which we explore in more detail later in this report.

Figure 2: European DC vacancy rates, 2020 - 2025 (%)



Source: CBRE

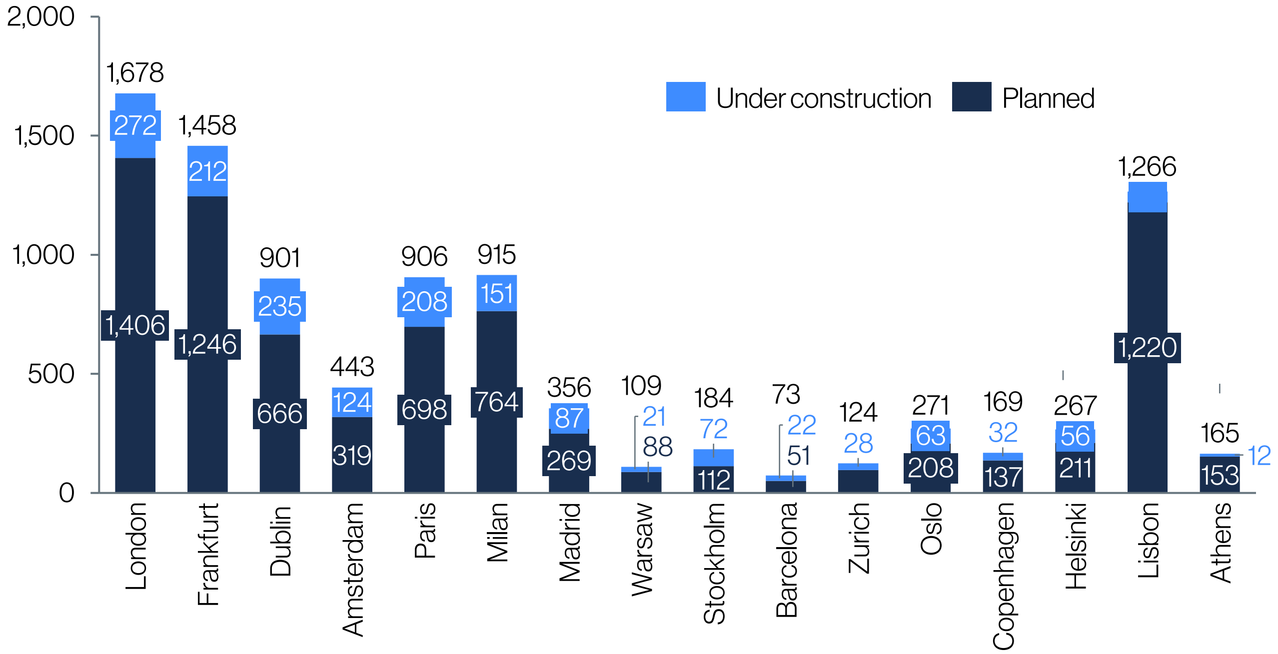
Utilisation rates in both FLAPD and secondary markets continue to remain high, with supply constraints leading to **declining vacancy rates** down to between 5% - 8% in FLAPD and 13% in secondary markets. We expect the growth in demand, in percentage terms, to continue to be higher for secondary markets over the coming years, especially in areas where there is strong end-user enterprise demand, attractive energy dynamics (cost, grid availability and renewable power), as well as proximity to high-capacity fibre and subsea cable networks.

1. Secondary markets refer to fast-growing and scaling European markets with DC capacity, such as Madrid, Milan, Warsaw, Berlin, Vienna, Stockholm, Oslo, and Lisbon. In addition, several other markets including Athens, Bucharest, Sofia, Zagreb, Cyprus, and Malta have emerged in recent years and are typically included in this group.

European Data Centres – demand and supply dynamics (2 of 3)

Over time, the growth momentum in secondary markets may slow, with demand gravitating back toward FLAPD locations as workloads transition from general enterprise and AI training to latency-sensitive AI inferencing.

Figure 3: European DC – planned and under-construction capacity by city (MW)



Source: Cushman & Wakefield

In terms of future planned and under-construction capacity, **FLAPD is expected** to continue to drive the largest share of future capacity with London and Frankfurt leading (>1.4 GW each). Secondary markets such as **Milan, Madrid, Oslo, Helsinki** and **Lisbon** are **gaining traction**. This growth is further enabled by proximity to established high-capacity fibre networks and subsea cable landing stations. Lisbon shows an exceptional >1.2 GW pipeline in its planning phase. Given the long lead times of up to 10 years to build a new greenfield data centre, planned DC capacity figures should be taken with caution, given European wide challenges surrounding operationalisation, related to planning and access to power and transmission connections in many cities.

While we expect secondary markets to continue to grow in share of DC capacity, we believe at some point this may slow down once data centre workloads shift from general-purpose enterprise workloads and AI training to more latency sensitive AI inferencing. Currently we estimate that **70% of DC demand** is driven by general-purpose **enterprise workloads** which are less latency and location sensitive. Over time, however, this is expected to shift to 50:50 between general-purpose enterprise workloads and AI.

European Data Centres – demand and supply dynamics (3 of 3)

Figure 4: European DC – current and forecast workload demand

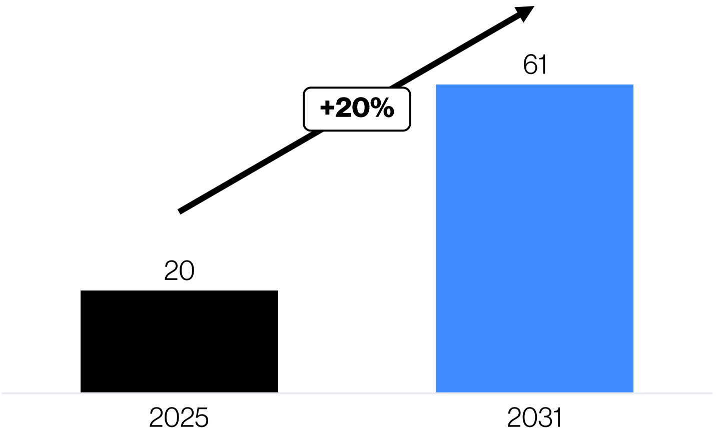
Legacy DC workloads	AI and Gen AI workloads	
	AI Training	AI Inferencing
Traditional enterprise workloads for running enterprise applications with moderate compute and storage requirements	Large scale compute and power intensive processes needed to build AI models by feeding them large datasets to drive pattern recognition	Real-time execution applying built AI models to specific use cases that are closer to end-user applications (e.g. OSS/BSS)
Less latency and location sensitive	Less latency and location sensitive	More location and latency sensitive
2025: c.70% of global DC demand 2028: c. 50% of global DC demand	2025: c. 30% of global DC demand 2028: c. 50% of global DC demand	

Source: Eight Advisory Analysis and Estimates; Expert Interview

Growing demand for HPC, AI-ready DC

The high-performance computing (HPC) DC market is expected to grow at 20% per annum over the coming years driven by demand from AI. Operators will need to retrofit existing facilities with higher rack densities and advanced cooling requirements to meet future demand.

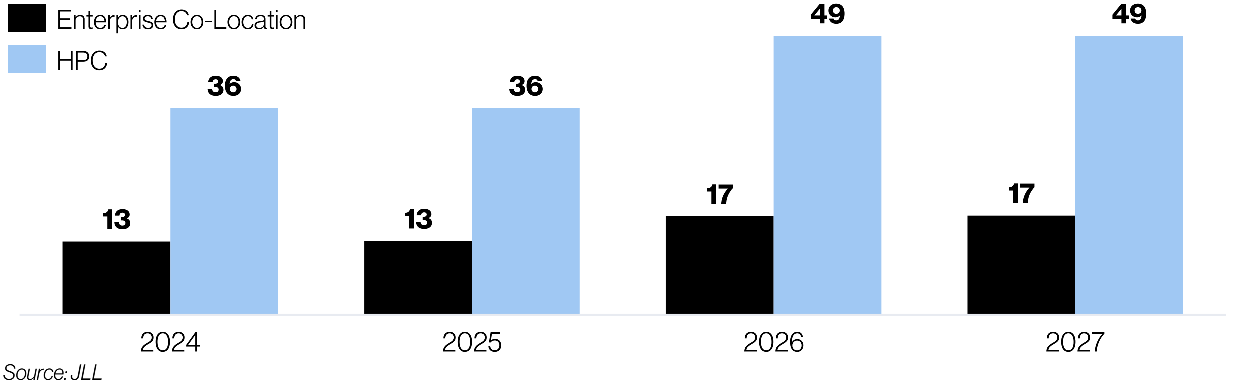
Figure 5: European HPC DC market size (in $B)



Source: Mordor Intelligence

Driven by AI-adoption, material growth in demand for high-performance computing (HPC) facilities in Europe is expected over the next five years. Such facilities have materially higher rack-densities to facilitate more intensive performance, computing, and storage requirements that power-hungry AI-models require. Operators are having to respond to this demand with more advanced liquid cooling systems, specialised chips, better energy management and larger storage and campus requirements.

Figure 6: Average rack density (2023-27) by Data Centres type - in KW per rack



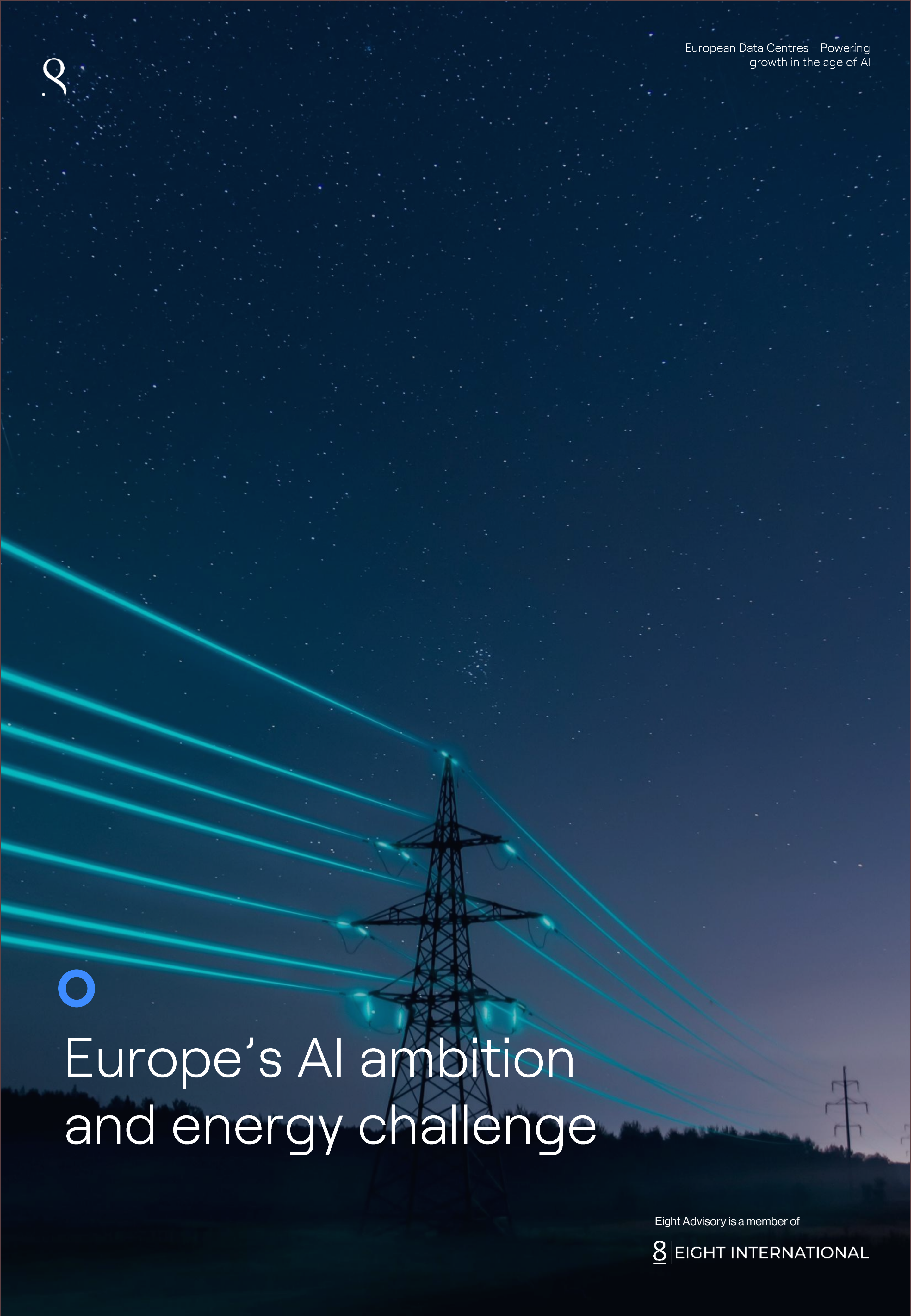
Source: JLL

Given a majority of European DC facilities today are servicing general-purpose enterprise workloads, the growth in HPC demand presents a future challenge for **operators and investors**, who will either have to **upgrade legacy facilities** to meet AI-readiness requirements or **build new greenfield HPC facilities**.

In a recent survey of 3,000 senior Data Centre professionals across Europe, including operators, developers, and end users[1], 85% stated their existing facilities were not ready to service HPC workloads.

While in theory, a flexible mixed enterprise / HPC density facility could cater to both enterprise co-location and HPC segments with differing rack-densities, compute and cooling, most of the operators we have spoken to suggest this is likely to be unviable, given the sheer scale of demand and requirements from the HPC segment.

1. BCS Survey: The new rules of data centre growth: not if, but how



Europe's AI ambition and energy challenge

Europe's AI ambition – yet energy could spoil the party

> *The EU and European governments have set material investment targets for DC and AI infrastructure using a mix of public and private capital including a target to triple existing DC capacity from 2025-32.*

Figure 7: Major AI investment initiatives launched by the EU

European Union AI and data centre infrastructure – investment targets

- ***Objective:*** *Triple existing European DC capacity in 5-7 years, by 2032.*
- ***Invest AI - €200B 'layered fund'*** *to accelerate AI adoption utilising existing EU funding programmes and member state contributions. Includes €20B funding for AI gigafactories.*
- ***EU AI Champions*** *– coalition of private companies* ***pledging €150B investment*** *over the next 5 years.*

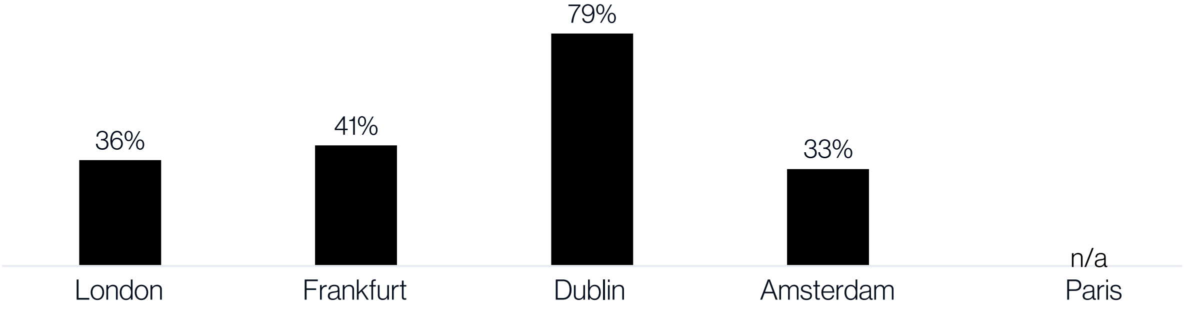
Source: European Commission; Press

In September 2024, the EU released the Draghi report warning of failing European competitiveness and the need to boost living standards through a range of pro-growth **investment policies** and initiatives including streamlined regulation, a capital markets union, and €700-800B investment *per annum* target across all sectors, including digital infrastructure and AI.

As *Figure 7* shows, the EU has recently launched a number of AI investment targets and initiatives aimed at boosting growth and ensuring Europe stays competitive in the AI race. Yet, despite ambitious targets, growth is likely to be constrained by material power and transmission grid constraints across Europe, with electricity grids that are ageing and wait times for connection that remain elongated in most countries.

The **lack of available power** and transmission is **particularly acute** in leading **FLAPD** markets, as the below chart demonstrates. Within FLAPD, the share of power demand consumed by data centres relative to total demand ranges from **30-80%** of **all demand**, highlighting the challenges FLAPD markets will have in meeting the required capacity expansion required over the coming years.

Figure 8: FLAPD – % of all power demand consumed by data centres, by city, 2024



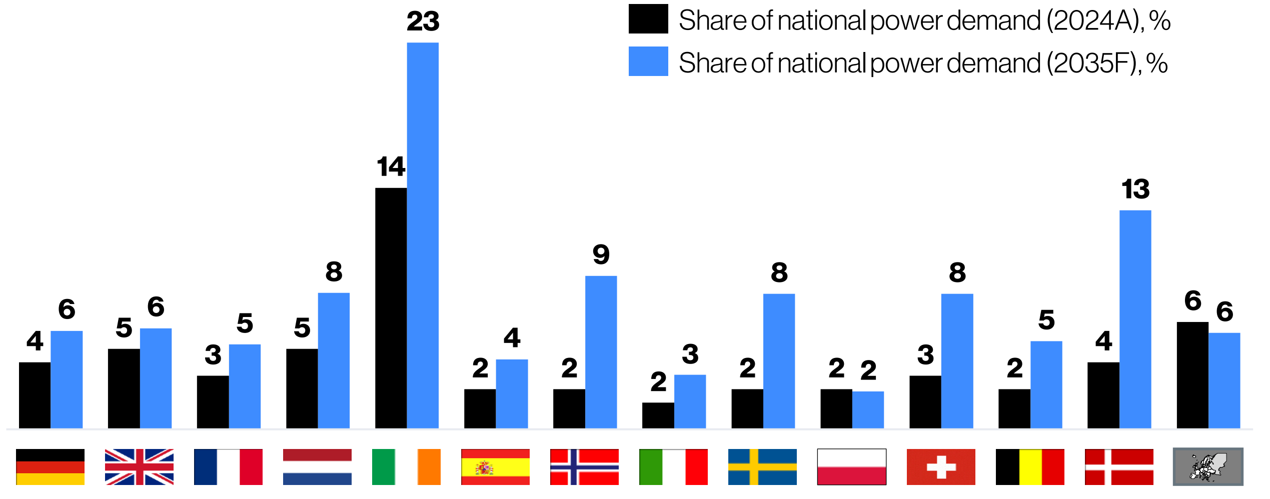
Source: Environmental impacts of Artificial Intelligence, report by Greenpeace

Due to the high share of power consumed, grid operators in Dublin, Frankfurt and Amsterdam have put in place significant restrictions on new grid connections, with Dublin and Amsterdam essentially operating a **de-facto moratorium** on **new DC facilities** receiving grid connections.

Europe's AI ambition – the energy challenge

Data centres are expected to consume significant amounts of power globally at a time when governments and investors are undertaking economy wide decarbonisation.

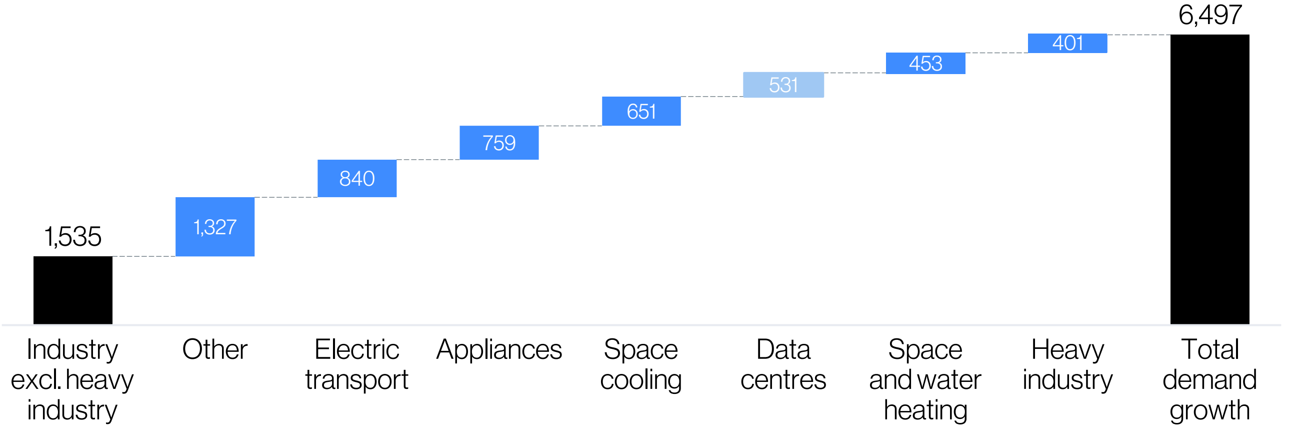
Figure 9: Projected data centre power demand in Europe by country, 2024 - 2035



Source: ICIS – Data Centres Power Demand in Europe

Looking outside of FLAPD the power situation at a country level, still represents a material challenge. While DC power demand is expected to grow across Europe, some countries such as Ireland are forecast to exceed 23% of all power demand by 2035. The overall increasing share of demand will heighten the imperative for European governments to undertake investments in both power generation but also transmission capacity.

Figure 10: Projected global electricity demand growth by sector, 2024–2030



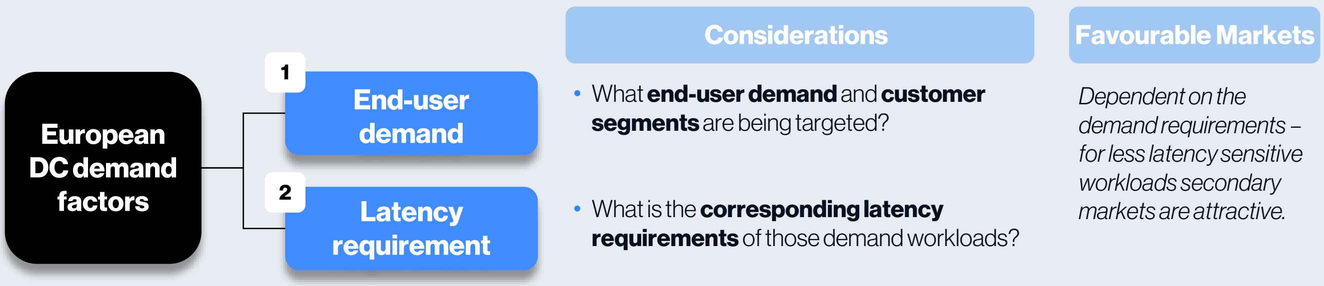
Source: IEA – Energy and AI: Energy Demand from AI

Complicating the challenge is the fact that data centre power demand is expected to surge just as governments and investors compete for additional energy capacity to drive **economy-wide decarbonisation** of industry, transport, and heating.

Our view: European markets positioned for DC growth

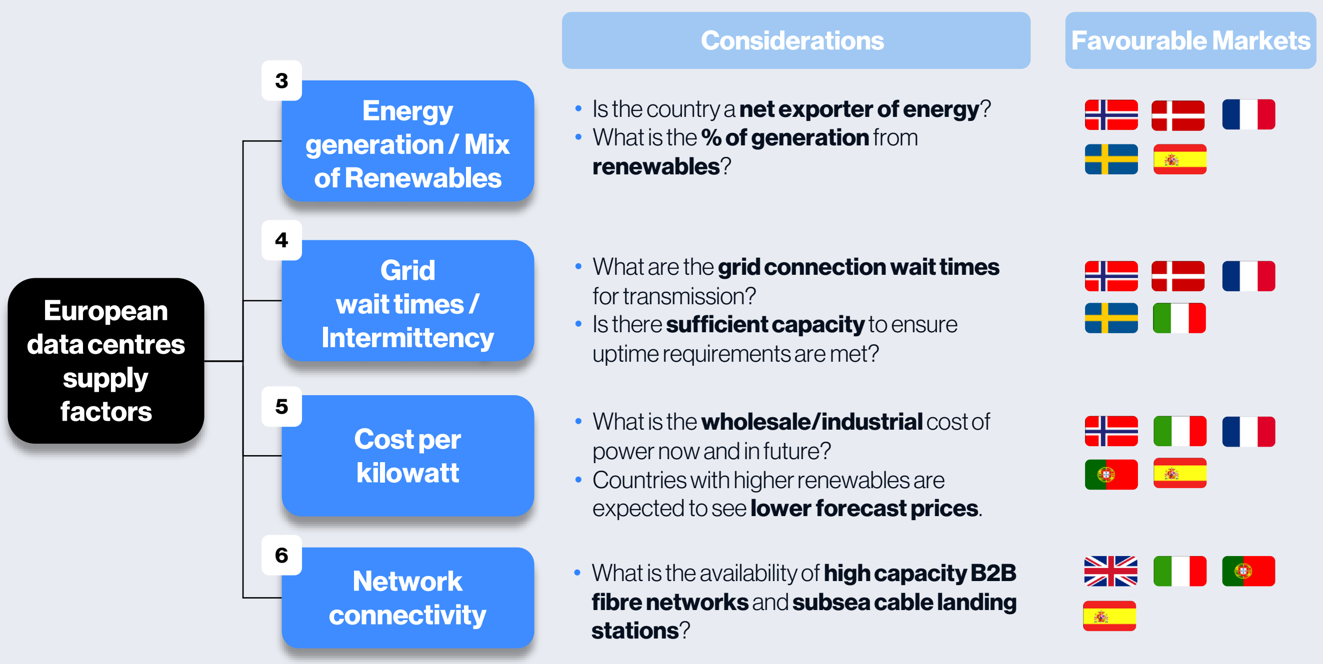
In our view DC investors and operators must consider six core demand and supply factors when prioritising which European markets are best placed for expansion.

Figure 11: Key European DC Growth Considerations - Demand Factors



The attractiveness of European countries for new DC deployment is largely shaped by two demand drivers: end-user demand and workload latency requirements. General-purpose enterprise workloads and AI training, being less latency-sensitive, can be supported from secondary markets. In contrast, latency-critical workloads such as AI inferencing require computing capacity closer to end-users, making FLAPD markets more favourable.

Figure 12: Key European DC Growth Considerations - Supply Factors



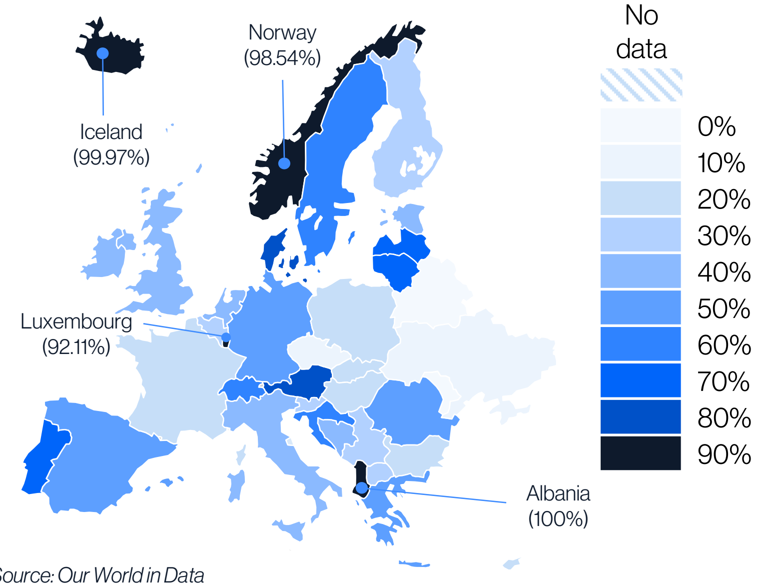
Further, the choice of where to build a data centre is influenced by various supply-side considerations: energy generation (total output and share of renewables), transmission grid capacity, energy costs, and the availability of network connectivity alongside affordable land. We have excluded land in the framework, as its availability and cost is typically a function of rural vs. urban locations rather than a country-specific advantage. Among the energy factors, overall generation is generally less of a constraint in Europe compared with transmission. However, operators are increasingly prioritising markets where renewable make up a meaningful share of the generation mix.

Source: Eight Advisory analysis

Energy generation and costs

Countries with a higher share of renewable generation, lower power costs, and whom are net energy exporters, are likely to offer a comparative advantage.

Figure 13: Share of energy production from renewables (2023)

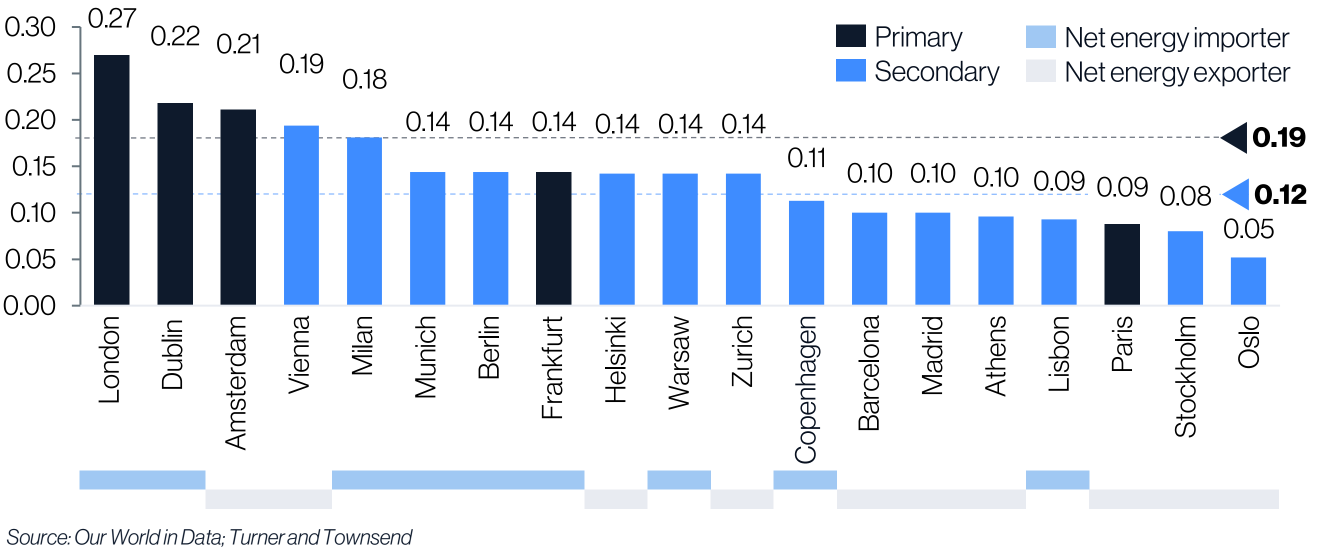


Source: Our World in Data

Availability of **affordable**, large-scale **renewable power** is a competitive advantage in facilitating the deployment of data centres. Massive energy demands are pushing DC operators to **adopt renewable energy**, with **Nordic countries** leading due to strong green energy production.

Large operators can produce renewable energy on-site/off-site or purchase it, though **intermittency issues,** especially with solar and wind, alongside insufficient capacity and **grid congestion**, remain constraints.

Figure 14: European DC energy cost 2024 – € per kWh



Source: Our World in Data; Turner and Townsend

The **relative cost of energy** across different EU markets is likely to influence future site and location selection. Cities in Norway, Sweden, France, Spain, Portugal are more cost competitive for DC operators, a factor that is likely to attract further investment. Energy security is also likely to drive DC development to countries where generation supply is plentiful. Countries that **are net energy exporters** considered to have a competitive advantage. In this respect, Nordic countries produce the most energy per capita in Europe, alongside Albania and Luxembourg.

Grid transmission congestion

> *Despite the bold ambitions outlined by European governments for DC deployments, electrical grids in Europe are ageing and material wait times for grid connectivity is likely to play a significant role in future deployments.*

Figure 15: Estimated Grid wait times for new Data Centres

Country	Estimated Wait Time	Commentary
	**5–10 yrs** (no new power until 2035 in West London)	Government exploring **AI Growth Zones** and clustering >**500 MW** campuses to speed delivery.
	De-facto **moratorium on new Data Centres connections until 2028** in Dublin region	DCs already large share of demand (c.**21%** of national electricity in 2023).
	Often **up to 10 years**.	TenneT piloting **off-peak capacity contracts (9 GW)** to ease congestion; demand for flexible contracts far exceeded supply.
	Commonly quoted **5–7+ years**; some utilities warn **10–15 years** in certain regions.	Heavy growth but access remains a top bottleneck.
	**5–7 years** (up from ~2–3 years)	EDF offering ready-to-use sites with 2 GW earmarked for DCs
	**c.3 years** (as little as) for DC grid connections.	Terna's DC **request queue c.30 GW** by end-2024, showing massive interest in 'faster' market.
	**3–5 years** (industry association snapshot).	–
	**>5 years** around Stockholm (operators either pre-book or move north).	Svenska kraftnät planning major reinforcements (1,500 km new lines; 30 substations) to relieve bottlenecks.
	**c.3 years** ; historically shorter waits	Strong 400 kV build-out; congestion emerging in hubs. Energinet long-range plan adds new lines by 2030–50.
	**1–3 years in most regions**; up to ~5–10 years near Oslo	Availability depends on hub/DSO
	**c.3 years**	Government working with Elia/Fluvius to attract DCs

Source: Publicly available sources including UK (German Data Center Association, DataCenterDynamics, London City Hall), Ireland (Ember, AP News), Netherlands (DataCenterDynamics, Smart Energy, Taylor Wessing), Germany (German Data Center Association, Clean Energy Wire, JLL), France (Reuters), Spain (German Data Center Association), Sweden (Mordor Intelligence, SVK), Denmark (Ember-Energy, Clean Bridge), and Norway (Mordor Intelligence, Statnett), and Belgium (Ember-Energy)

Unlike factories or offices, data centres require **24/7 continuous power** to meet **high uptime requirements**, making them 'inelastic' consumers of power, placing steady strain on the grid. **Grid connections** for DCs are considered 'table stakes' as issues with transmission intermittency impact various DC operating performance factors, such as latency, scalability, and energy efficiency which ultimately flow through the bottom line.

At a country level, **grid congestion and wait times are becoming a material challenge** in established European DC markets of the UK, Ireland, Netherlands and Germany. Other countries such as France, Italy, Spain and the Nordics offer better grid wait times generally. However, **grid availability is often highly localised**, and hence even in countries where there is sufficient overall grid capacity (such as Sweden and France) there are likely to remain pockets within a geography that remain constrained (e.g. Stockholm), highlighting the need for localised analysis when formulating investment decisions.

Planning and permitting cycles for Data Centres

Beyond power and grid constraints, slow and complex planning approval processes in many European jurisdictions are a growing impediment to new data centres development.

Across Europe, the critical path for new data centres is no longer design or construction. Beyond power and grid connectivity constraints, **speed** and **complexity of planning and permitting processes** are increasingly holding projects back.

In the core FLAPD hubs, developers face multi-stage local consenting processes alongside lengthy grid queues. In the UK, operators report 9–12 months of pre-application work before the statutory 13-week determination period[1]. To streamline approvals, the UK government has confirmed the intention to designate DC projects under the NSIP (Nationally Significant Infrastructure Project) process. The UK is also creating dedicated 'AI Growth Zones' to speed up planning permissions and accelerate build-out of data centres.

Permitting adds further uncertainty through multi-stage environmental approvals, local impact assessments and evolving municipal policies. Policy volatility is a material risk. Several cities, for example Amsterdam, have halted new data centres and expansions in the municipality.

Typically, we come across four key steps in the planning and permit approval process in most European jurisdictions:

01. **Pre-application & EIA checks**: Pre-application and early meetings with the local planning authority, and formal screening and scoping for Environmental Impact Assessment (EIA). Early scoping clarifies study boundaries (traffic, noise, air, water, ecology) and the evidence needed.

02. **Primary land-use consent:** Involves local planning permission and building permits which test land-use conformity, design and massing, and local impacts, typically with a public consultation period.

03. **Environmental and industrial permit:** Backup generators and on-site plant typically require permits that set emission limits, monitoring and operating conditions. For example, in the UK, the need for a standard rules or bespoke permit depends on aggregate thermal input, hours of use and site-specific factors.

04. **Grid interconnection:** Connection is a separate technical and commercial process with the system operator and network owner. For data centre programmes, early engagement, capacity reservation and staged energisation can materially reduce scheduling risk.

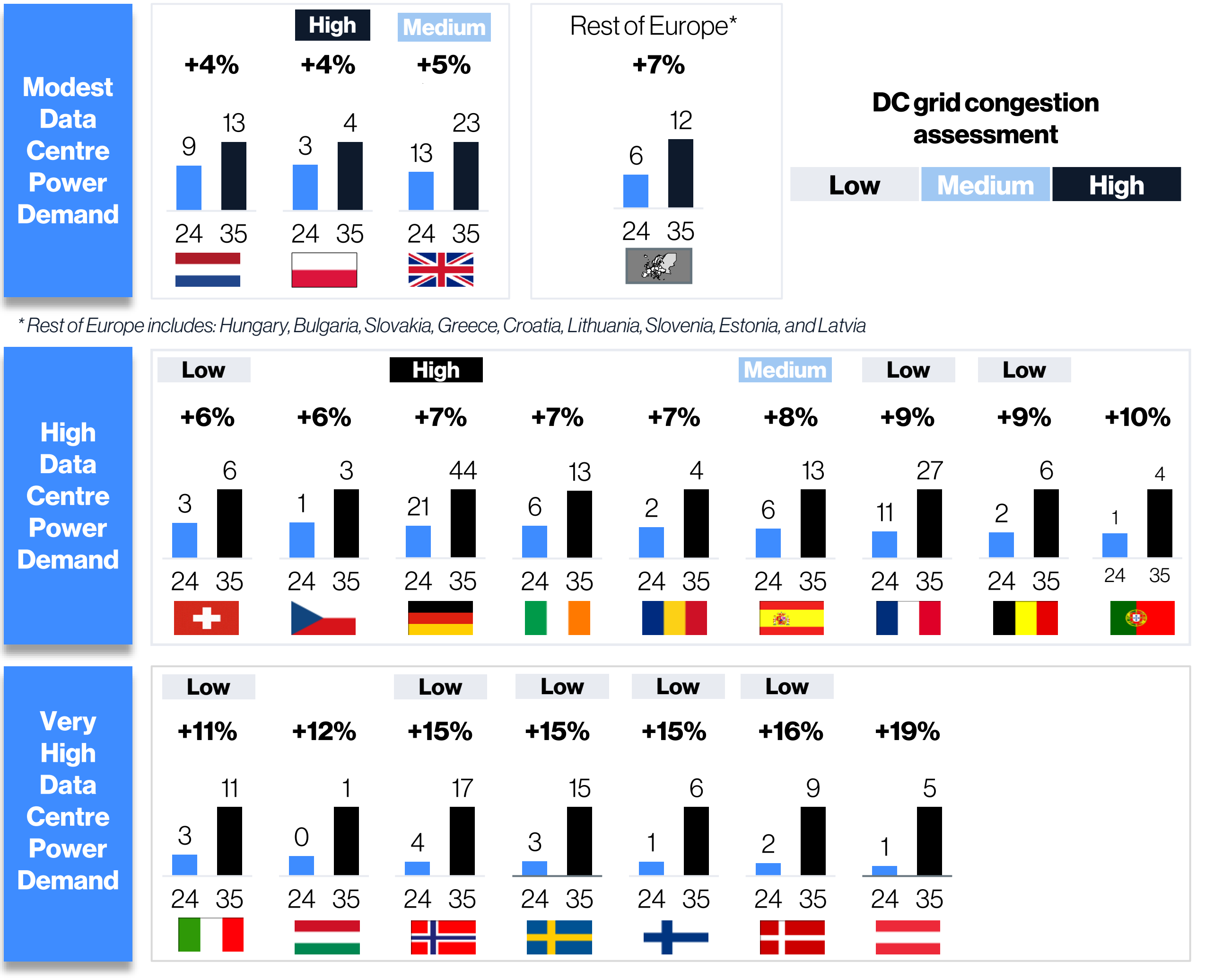
Ultimately, delays in the planning process can create a further imbalance between intent and delivery even in well-capitalised projects, increase build costs and risking Europe's AI ambitions. Developers that have secured grid capacity, land, and permits are positioned to lead. Customers will prioritise partners that can provide certainty on delivery timelines and activation. Investors and data centre operators must de-risk programmes by front-loading consents, build schedule contingency into underwriting, and consider pairing established hubs (in terms of both latency and demand ecosystem) with emerging markets that can deliver power and permits faster.

1. Data Centre Knowledge: Planning for the Future: Navigating the UK's Data Centre Development Maze

Forecast European data centre power demand

> *ICIS forecasts of 2035 Data Centre power demand suggest that countries with the highest grid capacity are likely to correlate with higher CAGR growth in data centre power demand.*

Figure 16: European Data Centre Electricity Demand by Country, 2024–2035 (TWh)



Source: ICIS 2024-35 Data Centres power demand forecasts; Grid congestion data sourced from European Network of Transmission System Operators for Electricity; and national Transmission Services Operators – NESO (UK), Elia (Belgium), RTE (France), Tennet (Netherlands), Energinet (Denmark); EirGrid (Ireland); PSE (Poland); Red Electrica (Spain)

Comparing ICIS forecasts of European data centre power demand, with power grid congestion sourced from European transmission service operators, we see that countries **with lowest grid congestion** tend to **correlate with higher forecast CAGRs** for data centre power demand out to 2035. In particularly countries such as Sweden, Norway, and Denmark are expected to see the highest growth (<10% per annum). Despite grid congestion impacting growth in data centre power demand, countries such as UK, France, and Germany are still expected to see the **highest absolute growth**, likely due to their status as established enterprise hubs and corresponding proximity to end-user demand. Interestingly, the forecast suggests data centre demand will remain concentrated in 10 European countries (80% of total data centre power use), although smaller countries are likely to see higher growth off a low base in areas of comparative advantage (e.g. renewables/transmission).

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Contact our European Digital Infrastructure experts and see how we can help you!

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