

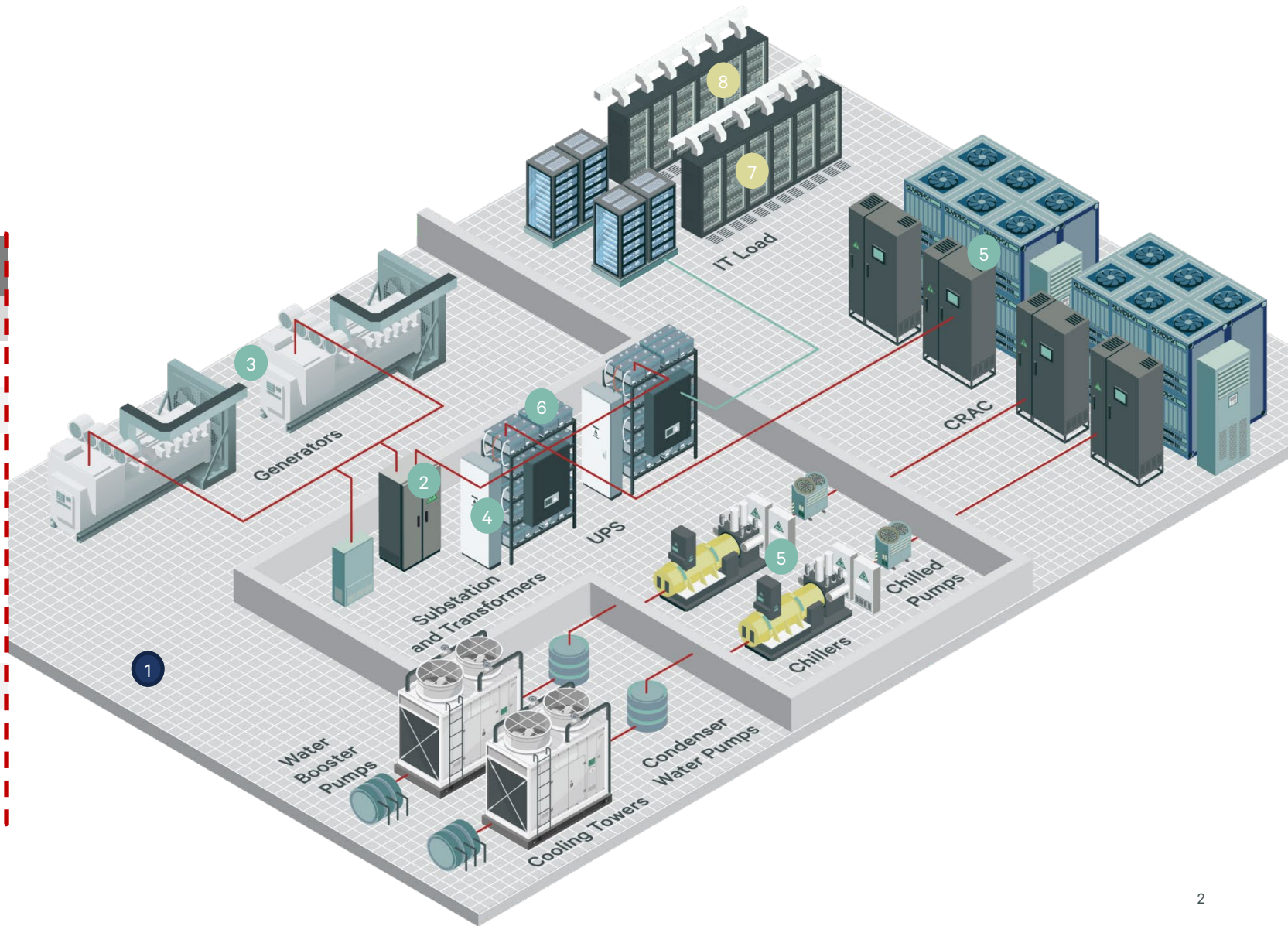
The German data centre market

How opportunities and
challenges are shaping
Europe's biggest market



Fundamentals

Turnkey Data Centre	Powered Shell Data Centre
Operator (e.g. EdgeConneX) owns	Landlord Owns (e.g. AXA)
1 Land & Building Shell	1 Land & Building Shell
2 Power Distribution	Operator (e.g. EdgeConneX) owns
3 Generators	2 Power Distribution
4 Power Supply	3 Generators
5 Cooling	4 Power Supply
6 Batteries	5 Cooling
Subtenant (e.g. Microsoft) owns	6 Batteries
7 Servers	Subtenant (e.g. Microsoft) owns
8 Racks	7 Servers
	8 Racks



Types of data centres



Enterprise

- Purpose built private facility for one customer
- Owned or leased
- Facility sizes typically **1-5MW** ⚡
- Often occupied by IT companies or banks
- Often highly secure, Tier IV redundancy & security
- Occupier is responsible for all M&E



Colocation

- The most common form of Data Centre
- The serviced office equivalent of the DC sector
- Operator leases racks or data halls to customers
- Facility sizes typically **1-30MW** ⚡
- Operator responsible for power, cooling & security



Hyperscale

- Wholesale colocation vs Build to Suit vs Self Build
- Facility sizes typically **10-50MW** ⚡
- Contract lengths typically **5-15 years +**
- Colocation **pricing is lower**
- Power exclusive deals
- AWS, Microsoft Azure, Oracle, Google Cloud



Wholesale Colocation

- Less fibre connectivity
- Handful of customers
- Larger deal sizes (**250kW +**) ⚡
- Contract lengths typically **5-10 years +**
- Colocation pricing is lower
- Power exclusive deals

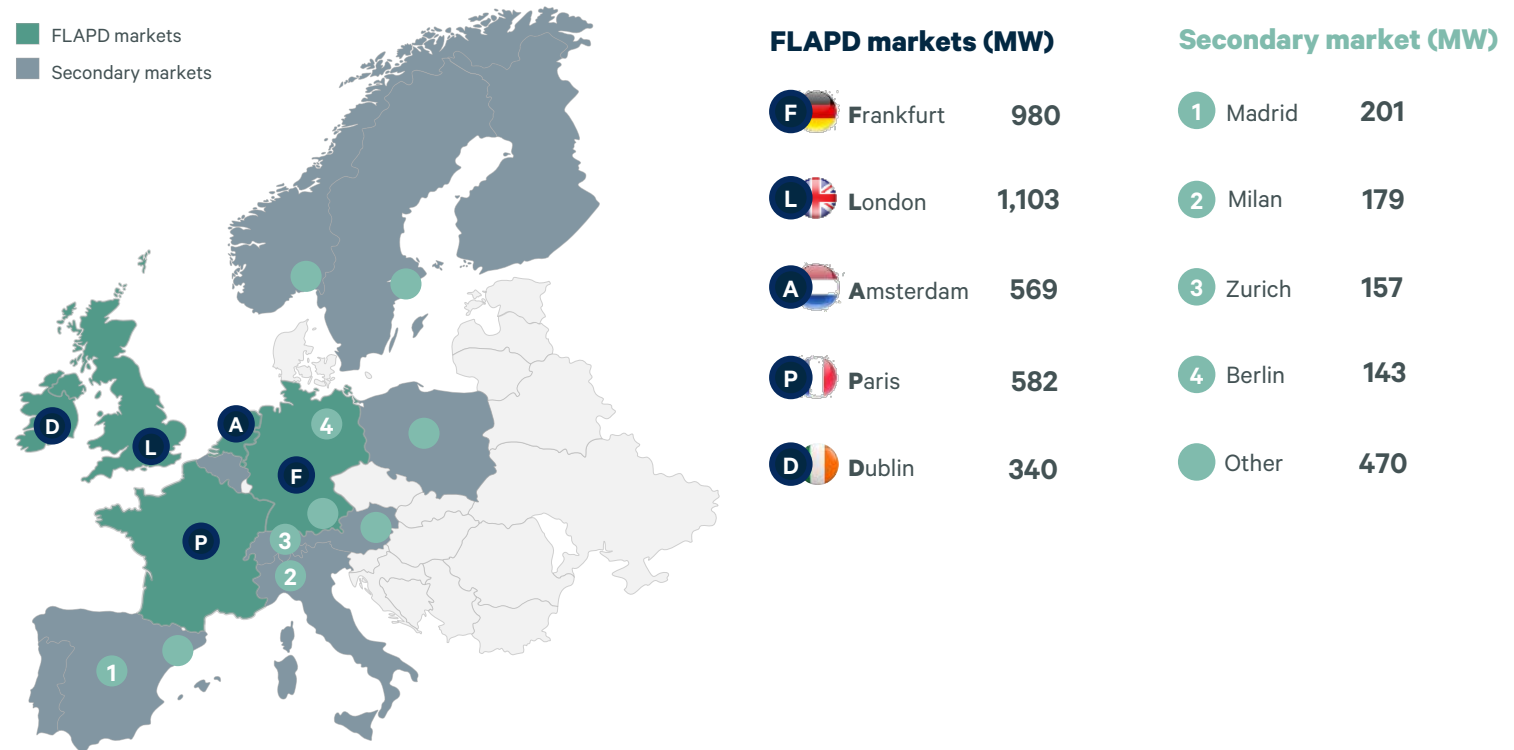


Retail Colocation

- Highly connected
- Hundreds of customers
- Deal size small (**5-250 kW**) ⚡
- Contract lengths typically **1-3 years**
- Colocation **pricing is much higher**
- Often power inclusive deals

FLAPD & Secondary Markets

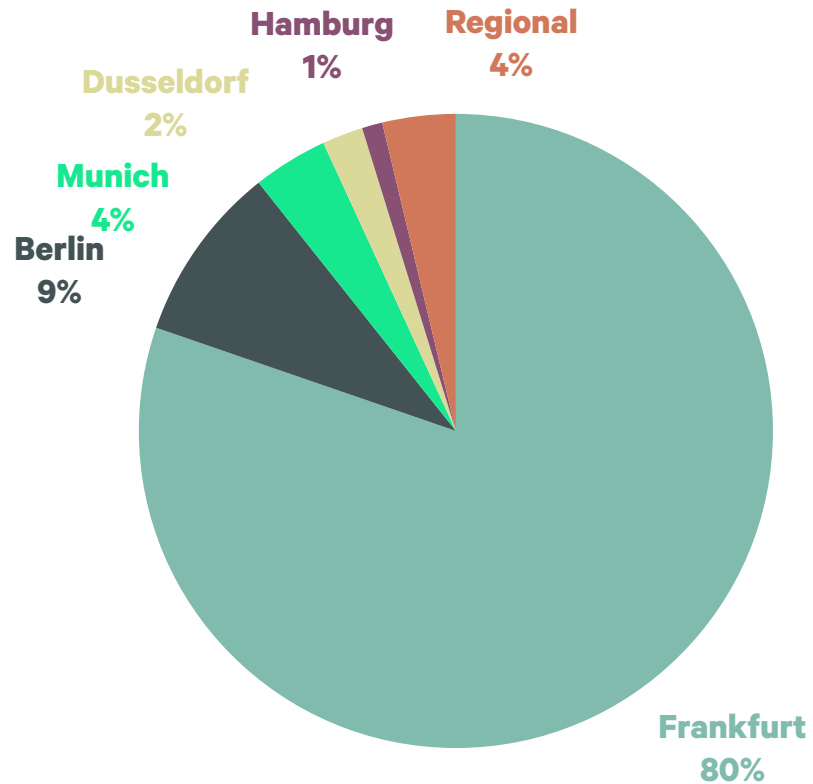
Secondary markets in Europe are expanding as wholesale demand increases in multiple markets. The FLAPD continue to see the biggest demand, but secondary markets are also set to exceed 200MW of capacity in 2025.



Source: CBRE | Note (1): Data are reflective of market size c. Q4 2024. | Note (2): The secondary market category is comprised of the following markets: Barcelona, Berlin, Madrid, Milan, Munich, Oslo, Stockholm, Vienna, Warsaw and Zurich.

New supply likely to ease the demand/supply imbalance but markets remain tight

Market share by location 2024



	Frankfurt	Berlin	Others
Total Capacity (MW)	980	143	138
2025F New Capacity (MW)	237	10	~15
2024 Colocation Rental Rates	▲	▲	▲
2024 Vacancy	▼	▼	▲

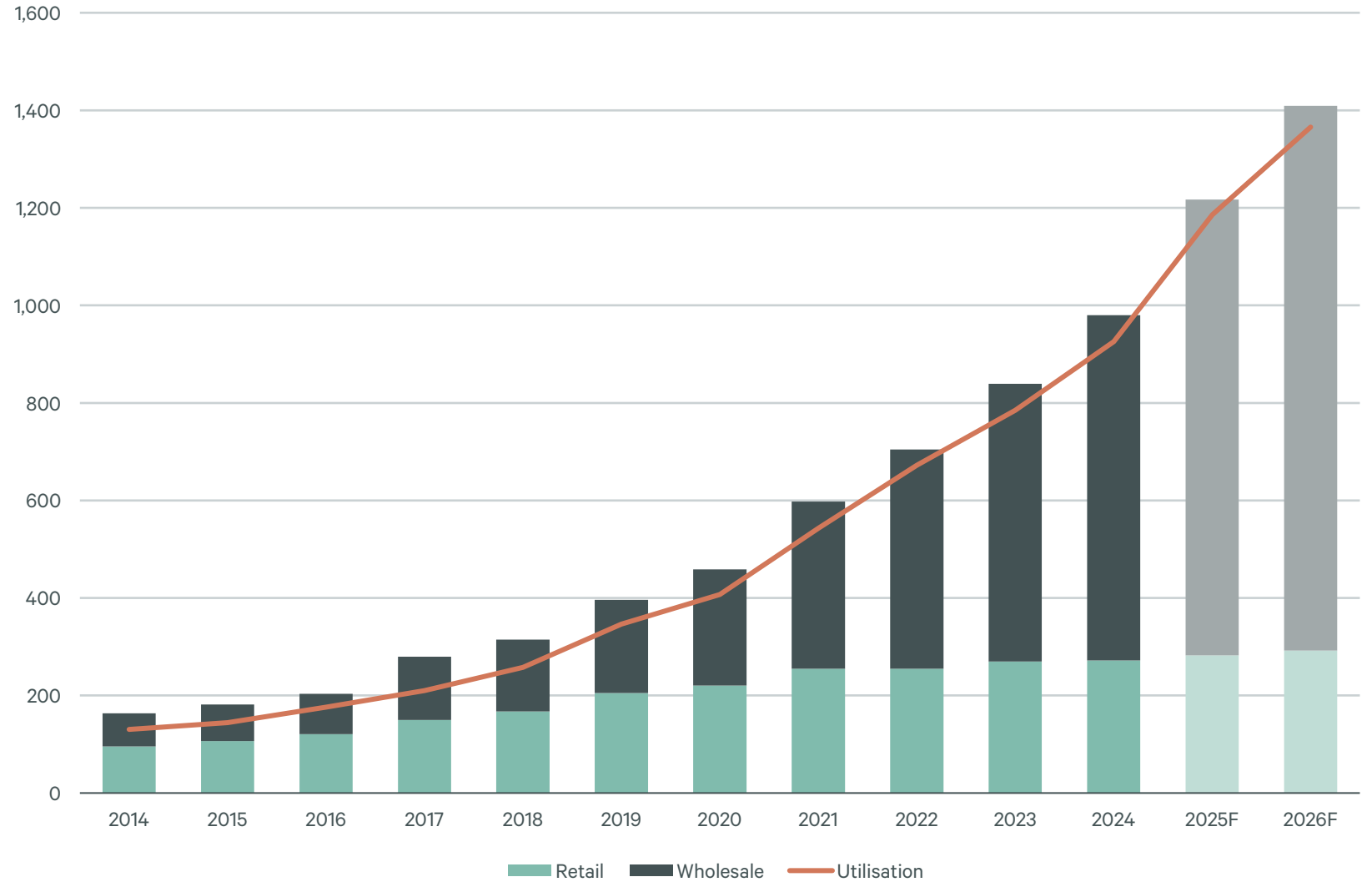
▲ Medium impact ▲ High impact

CBRE tracks third-party carrier neutral colocation data centres across Europe/Germany. Source: CBRE Research, Q4 2024.



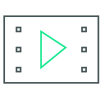



Frankfurt Supply

Frankfurt grew with a CAGR of 19.6% between 2014 and 2024. Projected CAGR for 2024 to 2026 is 19.9%, highlighting the significant demand for data centre capacity in Germany's biggest market.

Colocation Supply in Frankfurt (in MW)




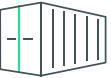




Key drivers for colocation supply

Drivers		Direct Impact
	Hyperscale / Cloud	● ● ●
	Technology Companies	● ● ●
	Media, Content & Gaming	● ●
	Financial Services	● ●
	Other Enterprises & SMEs	● ●
	Government	●

●●● High impact ●● Medium impact ● Low impact

Key challenges on colocation data centre supply

Challenges		Direct Impact
	Power/Land Availability	● ● ●
	Permitting	● ●
	Staff/Contractor Availability	● ●
	Supply Chain / Lead times	● ●
	Regulation	● ●
	Cost increase	●

● ● ● High impact ● ● Medium impact ● Low impact

Strong demand and constraints keep vacancy rates low

Germany Vacancy Rate

8.4%

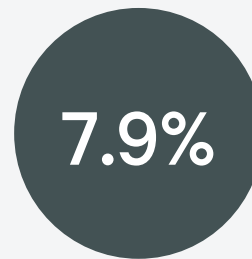
All-time low

Vacancy Rates by Market

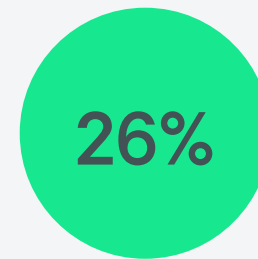
Frankfurt



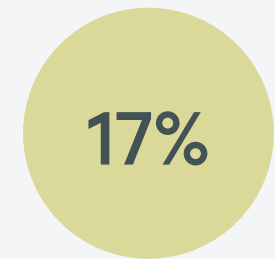
Berlin



Munich

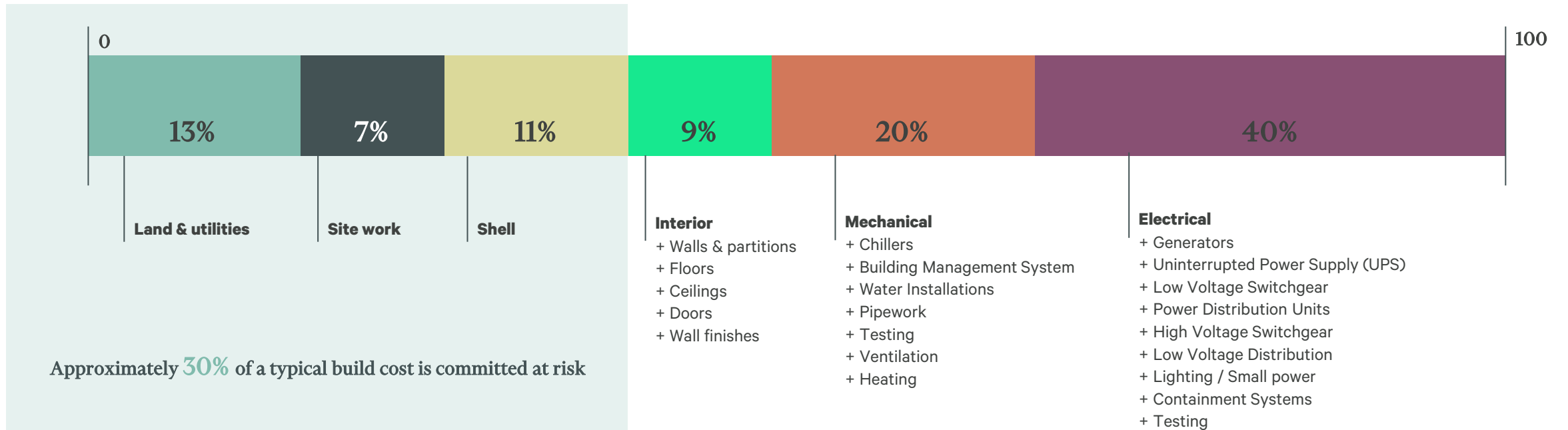


Dusseldorf



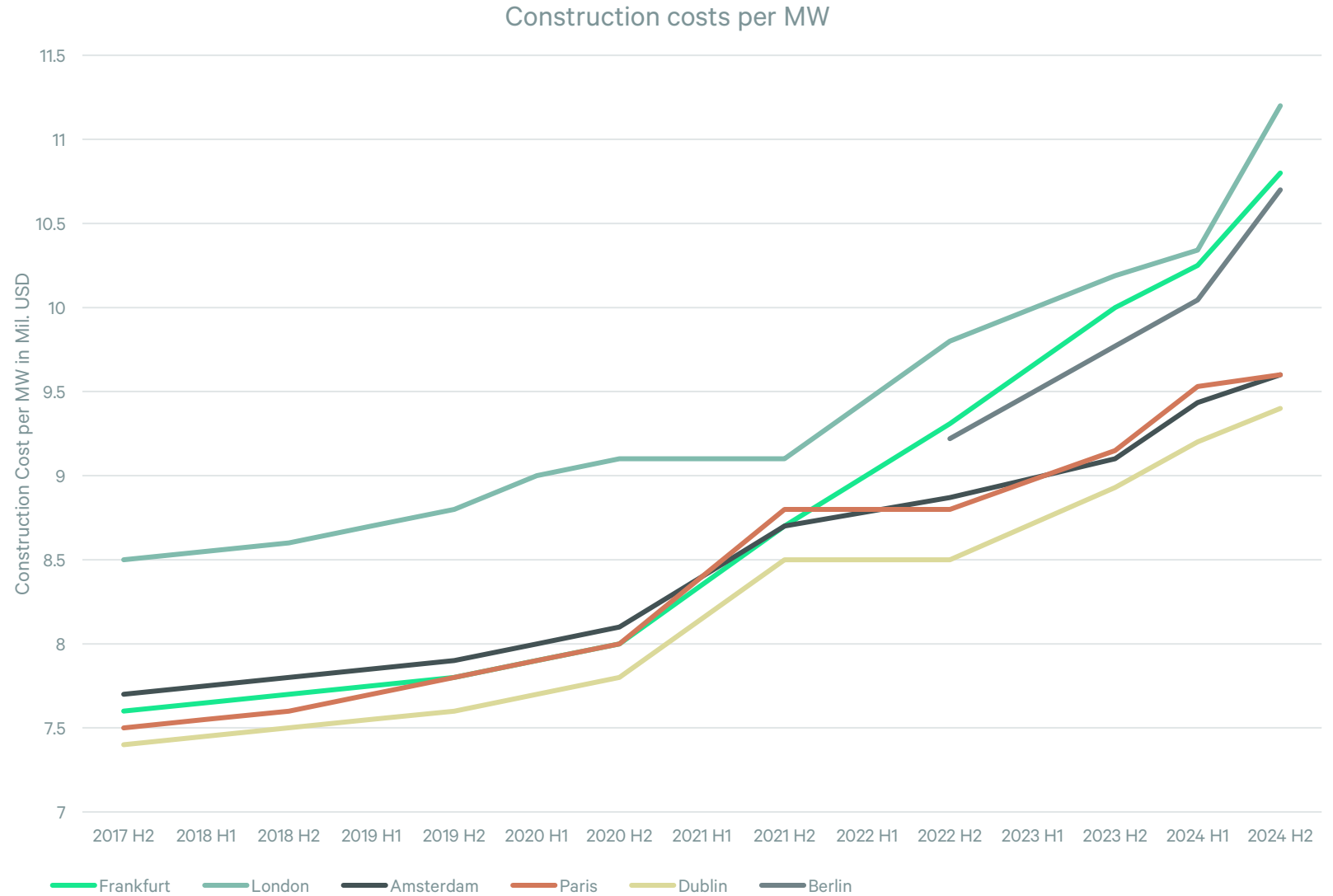
Source: CBRE Research, Q4 2024

Development costs



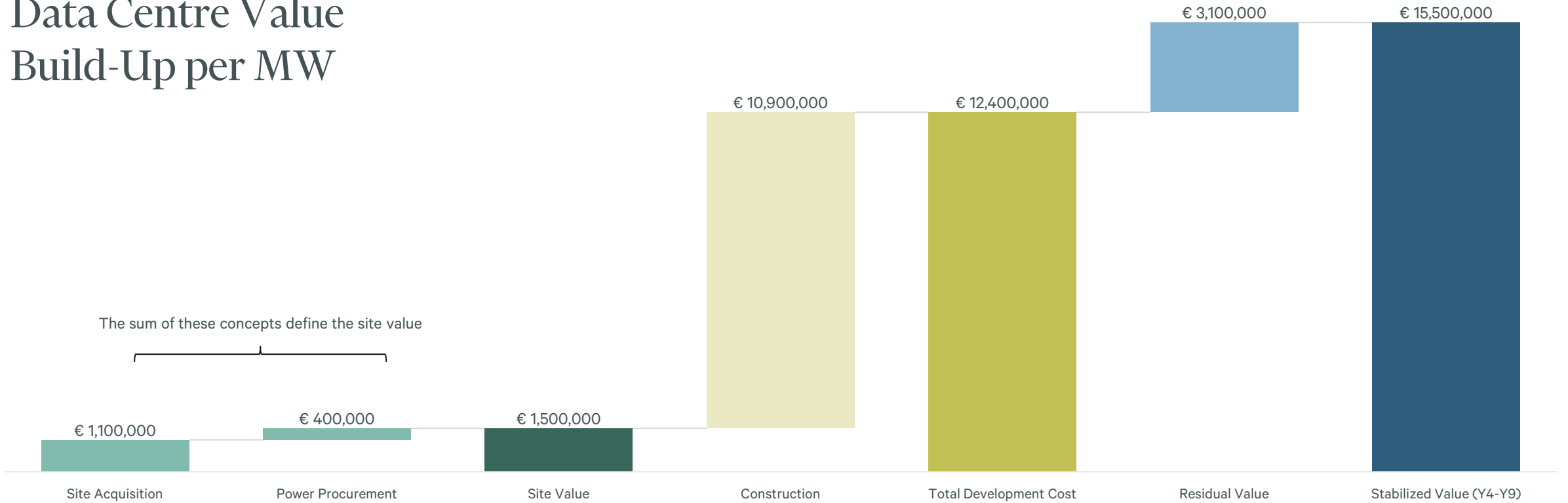
Construction costs

Construction costs are rising due to increasing demand, material costs, longer lead times for material and equipment and constraints in the labour pool. Prices increases are expected to continue in the coming years. The technological shift to liquid/hybrid cooling will add additional costs.



Source: Turner&Townsend; CBRE

Data Centre Value Build-Up per MW



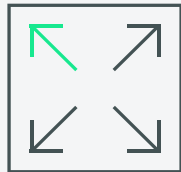
Note:

- The site value is composed of the land value and the power procurement costs
- The stabilized value of the leased MW (15.5M€) represents the average value from the end of the construction until the exit
- The residual value is the difference between the stabilized asset value, and the costs incurred. It can be seen as the value generated by the data center facility thanks to reduced risk throughout the development from acquiring the land, constructing, securing a tenant and exiting.

Focus points for the data centre market in 2025 and 2026...



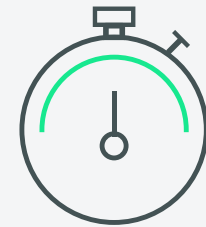
Redesign/Upgrading



Metro Expansion



Sustainability



Time to market