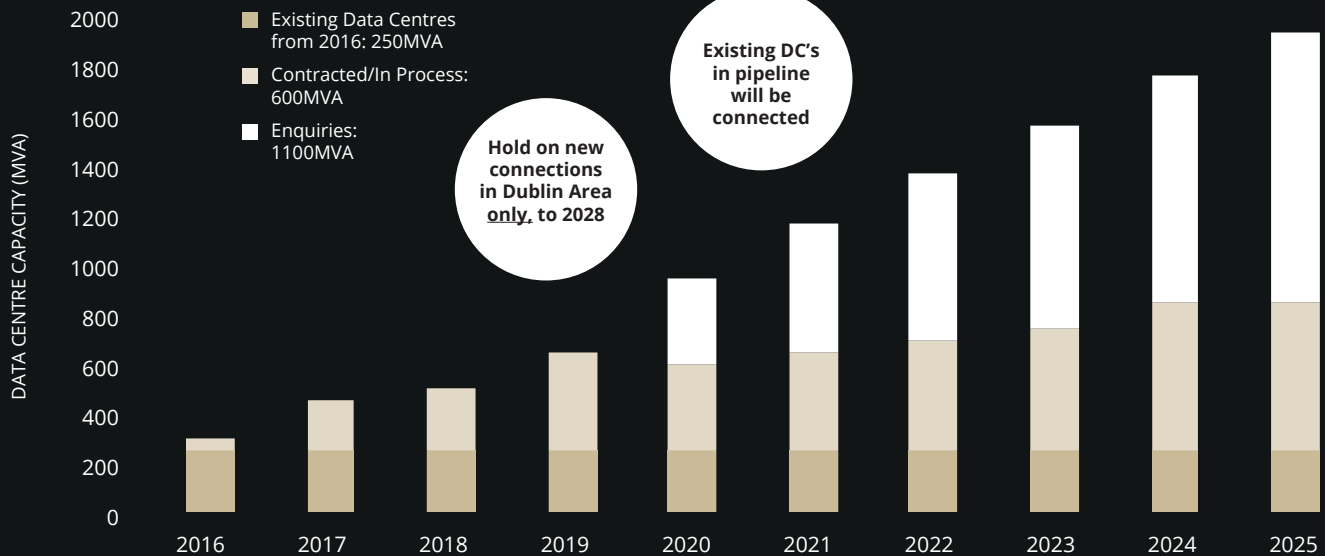
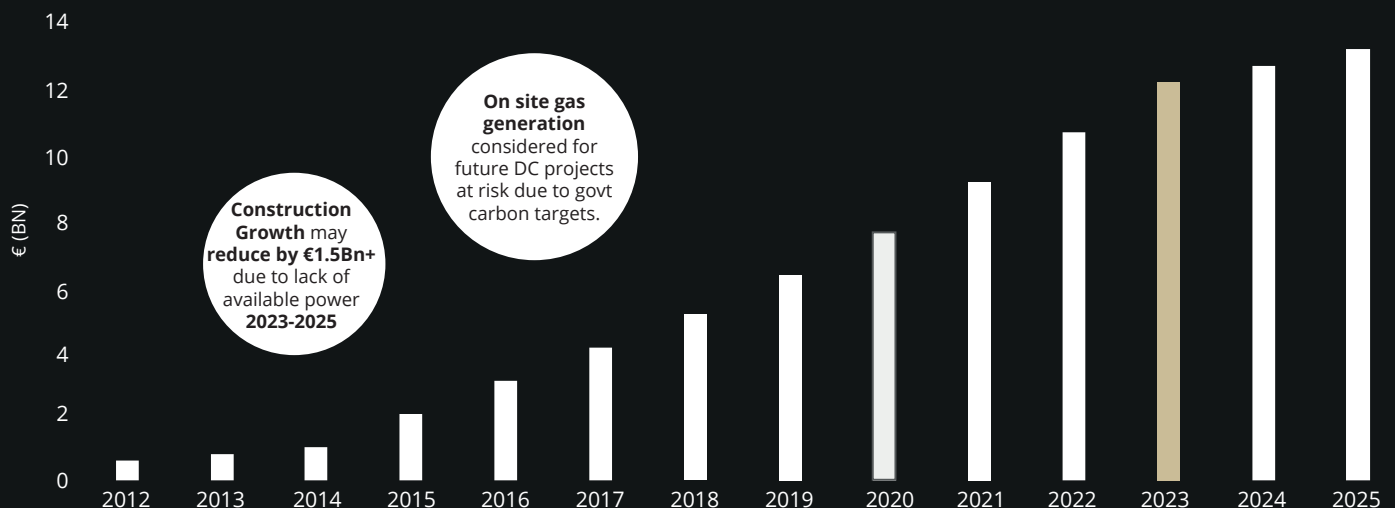


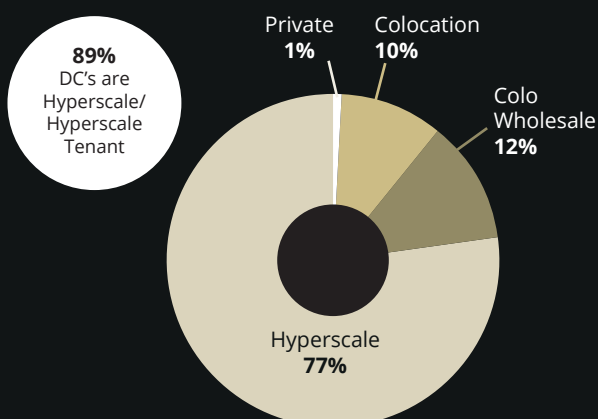
IRISH OVERVIEW



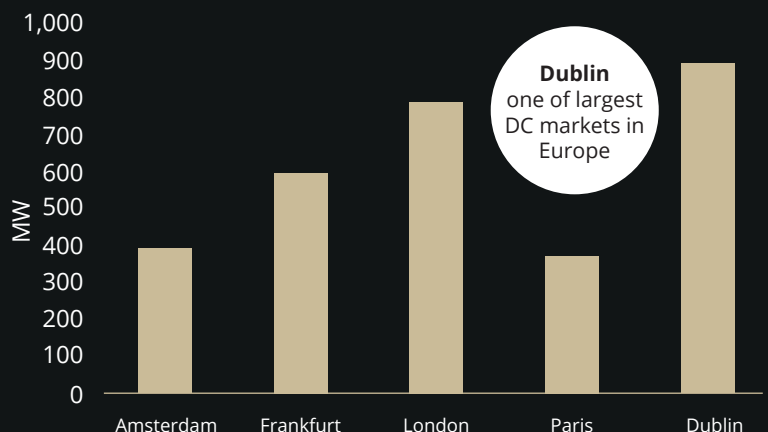
CONSTRUCTION INVESTMENT IN DATA CENTRES 2012 - 2025 (IRELAND)



DATA CENTRE TYPES IN IRELAND



MARKET SIZE (MW)

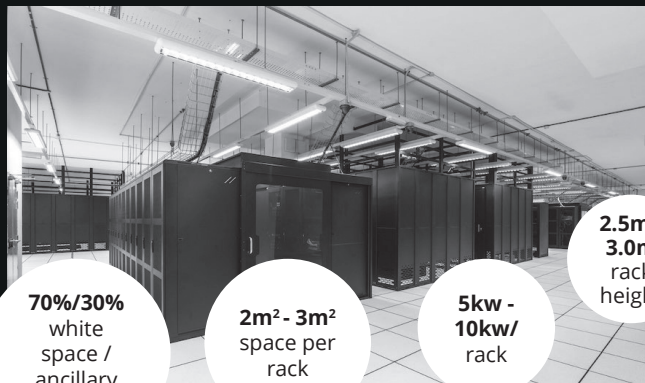


DATA HOSTING TYPES IN IRELAND

- Hyperscale** Examples: Amazon, Apple, Facebook, Google, Microsoft. Large scale companies that manage hosting for their clients. They build and operate their own data facilities to their own specification.
- Colocation Wholesale / Build to Suit** Examples: K2, EdgeConnex, Echelon, CyrusOne, Stack. Private investors fund, build and lease to the Hyperscales. The Hyperscale leases the "white space". This is relatively new to Ireland but is growing significantly due to demand.

- Colocation** Examples: Digital Realty, Keppel, Equinix, InterXion. Managed facilities for partial use by third parties. IT managers in various companies can lease "white space" which have high security, power and cooling.
- Private** Examples: BT, Eir, OPW. Purpose built by private companies involved in financial transaction, telecom and IT type industries.
- Edge** Examples: Not yet in Ireland. Edge DC's will range from 500kW to 2 MW. They will be located closer to where the end user is to help improve speed and latency.

DC DESIGN BENCHMARKS



70%/30%
white
space /
ancillary
space

2m² - 3m²
space per
rack

**5kw -
10kw/**
rack

**2.5m -
3.0m**
rack
height

CONSTRUCTION COSTS

**COST RANGE
€0,000**

Data Centre (white space spec) - €MW

Data Centre	€11.0m - €14m
-------------	---------------

Substations

Substation - 110kV	€19.0m - €24m
--------------------	---------------

Substation -38kV	€5.5m - €7.0m
------------------	---------------

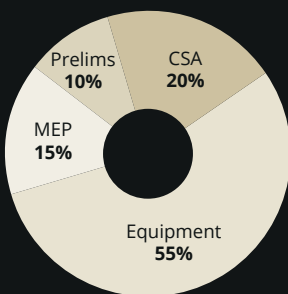
Infrastructure - Suburban

HV Cable (1Nr) - aluminium (2km - 10km length)*	€190/m - €260/m
---	-----------------

Trenching for HV Cable (2km - 10km length)	€570/m - €850/m
--	-----------------

* Can also be copper pending trench depth. Rate fluctuates due to commodities market

Elemental Split €/MW



**Dublin
€/MW
Construction
Costs Highly
Competitive**

IRISH CONTRACTORS DELIVERING DATA CENTRES

BAM

Mercury*

John Paul

Bennett Construction

Collen Construction

Walls Construction

Sisk

Winthrop*

Designer

Jones Engineering*

MACE

Structuretone

*Traditional M&E contractors have taken role as General Contractor on some projects in the Data Centre sector.

JARGON BUSTER

Term	Explanation
PUE	Power Usage Effectiveness: measure of DC efficiency calculated by dividing the total data centre energy consumption by the energy consumption of the IT computing equipment.
LV MV HV EHV	Low Voltage - up to 1000V Medium Voltage - 1000V to 35kV High Voltage - 35kV to 230 kV Extra High Voltage - above 230 kV
MW	Mega Watt: a measure of power equal to one million watts. Often used to describe the size of data centres in terms of power capacity.
MVA	Used for the apparent power in an electrical circuit, equal to the product of root-mean-square (RMS) voltage and RMS current. It is a measure of power consumption.
N+1	Need plus one: a redundancy concept where capacity is configured to include used capacity plus one additional device to enable continued operations with the failure of one system in the configuration.
2N	A redundancy model that ensures that every component has a backup such that the data centre has no single point of failure.
Cold Aisle	An aisle where rack fronts face into the aisle. Chilled airflow is directed into this aisle so that it can then enter the fronts of the racks in a highly efficient manner.
Hot Aisle	An aisle where rack backs face into the aisle. Heated exhaust air from the equipment in the racks enters this aisle and is then directed to return vents.
HAC	Hot Aisle Containment: system that directs heated air from the outlet side of racks to air conditioning equipment return ducts in a highly efficient manner.

DATA CENTRE COST INDEX (Dublin base = 1.0)



USEFUL CONTACTS

Company	Website
IDA	idaireland.com
Enterprise Ireland	enterprise-ireland.com
bitpower energy solutions	www.bitpower.ie
Host In Ireland	hostinireland.com
Eirgrid	eirgridgroup.com
Gas Networks Ireland	gasnetworks.ie
Planning & Construction Costs	mitchellmcdermott.com/insights

Tip: Hover over websites for links

The figures & data used for this card are based on a 10MW-20MW Data Centre with „white space“ only. Tenant servers and racks are excluded. Professional advice should be sought for specific projects. Costs are for construction only and exclude VAT | Tender Inflation from January 2024 | Site Acquisition | Planning and Statutory Fees | Development Contributions | Capital Contributions for Services connections | Bonds | Professional Fees | Sales and Letting Costs | Marketing | Legals | Valuers | Accountancy Costs | Finance Costs | Owner Insurances | Adjoining Neighbour Costs | Abnormal Ground Conditions | Brexit | Covid-19



Anthony McDermott
Director
086 303 2603

amcdermott@mitchellmcdermott.com



Ronan Tynan
Director
086 772 1256

rtynan@mitchellmcdermott.com



Paul Mitchell
Director
086 834 5444

pmitchell@mitchellmcdermott.com