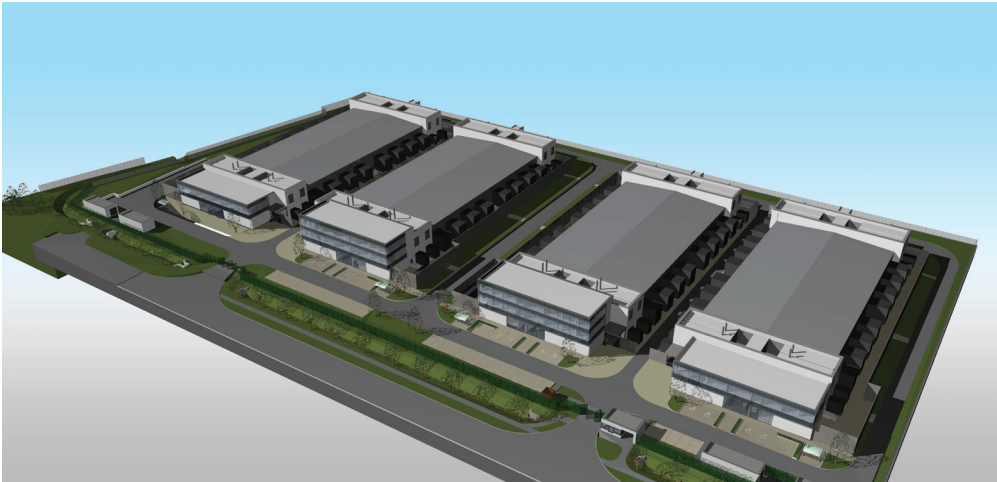


Case Study

DIGITAL REALTY, PROFILE PARK, DUBLIN



About Digital Realty

Digital Realty are a global company involved in datacentre acquisition, ownership, development and operation as well as providing colocation services. Digital Realty's 100+ properties are located across 30+ markets throughout Europe, North America, Asia and Australia.

The company is a member of The Green Grid and the Uptime Institute and has helped pioneer concepts of energy efficient data centre design.

CLIENT REQUIREMENT

To increase the Digital Realty footprint in Ireland to enable the business to capitalise on the growing demand for IT space from overseas enterprise. To achieve a world class PUE below 1.2 without introducing outdoor air into the IT equipment.

DLR were keen to maximise energy savings by utilising the most advanced cooling technology to fully exploit the free cooling opportunities that the Irish climate presented and to cool the facility without the need for compressor based cooling.

The facility to be designed to comply with the Uptime Institute's TIERIII resilience classification.

A total facility capacity of 15.4MW IT power provision split over 4 buildings with 2 datahall modules per building. Each of the eight datahall modules to be rated at 1.92MW with the ability to sub divide each hall into 2 x 960KW modules still maintaining N+1 resilience and TIERIII classification.



CLIENT BENEFITS

The headline benefit delivered by Excel is the energy cost saving. The annual energy bill difference for a 1920kW site operating at a PUE of 1.6 and 1.15 is approximately €650,000.

Successful Integrated system testing delivered a peak site PUE of 1.2 on one of the hottest days recorded in Dublin Digital Realty. This aligns with the anticipated final operational PUE of 1.15. Excools efficiency gains at lower cooling loads are expected to offset the losses seen by the UPS resulting in a flat PUE across IT load fluctuations.

A calculated WUE of 0.7 and CUE of 0.0625 are expected to be achieved.

The Excool compressor free system has a significantly lower electrical demand which reduces the infrastructure required to support it and redistributes the power provisioned for the site to the IT. Digital Realty were able to increase their available IT power from 1440kW to 1920kW while decreasing the generator size by 41% and the transformers by 23%. Associated savings on diesel fuel storage, switchgear etc were also realised.

INDUSTRY RECOGNITION

The development was awarded the prestigious Uptime Institutes BRILL award for product solutions in 2014.

The Uptime Institute have also awarded the site TIERIII classification for both design and facility. This is the first time this certification has been awarded to a datacentre in Ireland.

Profile Park is also recognised by BREEAM as one of the most efficient and sustainably designed and constructed datacentres in Europe gaining a status of 'Excellent'.

EQUIPMENT SELECTED

Phases 1 and 2

- 16 x 300kW Excool Units to serve the main halls
- Excool Units to serve equipment rooms
- Integrated fresh air handling units for pressurisation and humidity control.

The Excool indirect adiabatic and evaporative cooling system was chosen for its innovative indirect and compressor-less alternative to traditional chilled water and direct systems.

BENEFITS AT A GLANCE

- PUE of 1.15
- Annual energy savings of €650K
- Significant electrical infrastructure CAPEX saving.
- No compressors, no refrigerant.

“Excool represents a very exciting evolution in data centre low energy cooling technology. The system, whilst novel in its means of integration, comprises tried and tested system building blocks extant across a broad range of cooling technologies”

Robert Bath
Director Engineering

