

DATA CENTER SUCCESS... ...LEADING TO SUSTAINABILITY QUESTIONS

November 2021

THE DATA CENTER SUCCESS STORY

- Data centers continue to thrive worldwide, with anywhere from 3-4 gigawatts (GW) under construction globally at any given time. This is equivalent to a major metro area with over one million homes, leading to concerns for certain markets on how they will provide power for server use and water for cooling.
- The data center market is being driven by the IT transformation of large companies, government agencies, healthcare, education, and anyone else requiring an online presence. The onset of COVID-19 and the accompanying work-from-home imperatives accelerated the migration to the cloud or to a colocation facility, leading to construction growth to serve these needs. Data centers are far from maturity as an asset class, with a diverse array of ever-larger hyperscale builds, tiny facilities at the edge, and everything in between becoming part of the growing ecosystem.

WHAT IT MEANS FOR DATA CENTERS... AND THE PLANET

- Certain primary data center markets have instituted moratoriums on further large-scale development while renewable energy and/or alternative locations are found for heavy workloads. Singapore has utilized an unofficial moratorium since 2019, only allowing pre-approved projects or small-phase construction to continue as planned. This has created an array of other activities in-market, with industry and university partnerships to develop greener data center technology and further connectivity options to benefit those existing workloads. Amsterdam is continuing to work with the local data center industry despite their moratorium, reviewing far-flung exurbs or other cities entirely for potential data center deployments. Dublin and Frankfurt both have concerns over future power availability, with a motion currently being reviewed in the Irish parliament to institute their own moratorium.
- Water usage is a continued concern as the largest data centers can utilize millions of gallons of water for cooling. Desert areas (e.g. Phoenix, Las Vegas or Queretaro, MX) may be limited in their future data center deployments unless air cooling during the night or liquid cooling directly to the rack can be used instead. Excessive heat can limit server life, so continued optimization of cooling systems is an imperative moving forward.
- The largest hyperscale cloud services have formed plans to be carbon neutral, with many aiming to do this by 2030. As large corporations follow suit, these data center occupiers are pressing operators to source renewable energy and derive operating efficiencies to lower overall power usage. Operators have responded in kind, and many of the largest now publish public reports explaining their energy mix and efficiency goals.

WHAT'S NEXT?

- The industry is aware of the need for change and collaboration has begun among server firms, cooling companies, investment funds, government entities, utilities, and research universities to find novel solutions to the ever-increasing power needs.
- New investors entering the space are often acquiring older assets, with the understanding that these buildings will require retrofitting to make them appealing for new clients. As these investors begin the retrofit process, decisions must be made on whether to rebuild entire facilities at one time or to replace certain systems in a layered approach to allow for continued operations (and uptime) if tenants remain. Each approach has its benefits and detractions, depending on available funds and concerns of tenants.
- Workloads over the long term will likely be more optimized, with those requiring low latency or high network/peering needs located in denser urban areas and other workloads moved to rural locations where renewable energy is available (e.g. Eastern Washington, Quebec, Scandinavia). Markets that can produce renewable energy at speed and with low costs will gain data center adherents.

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HOW TO PLAY IT

OCCUPIERS

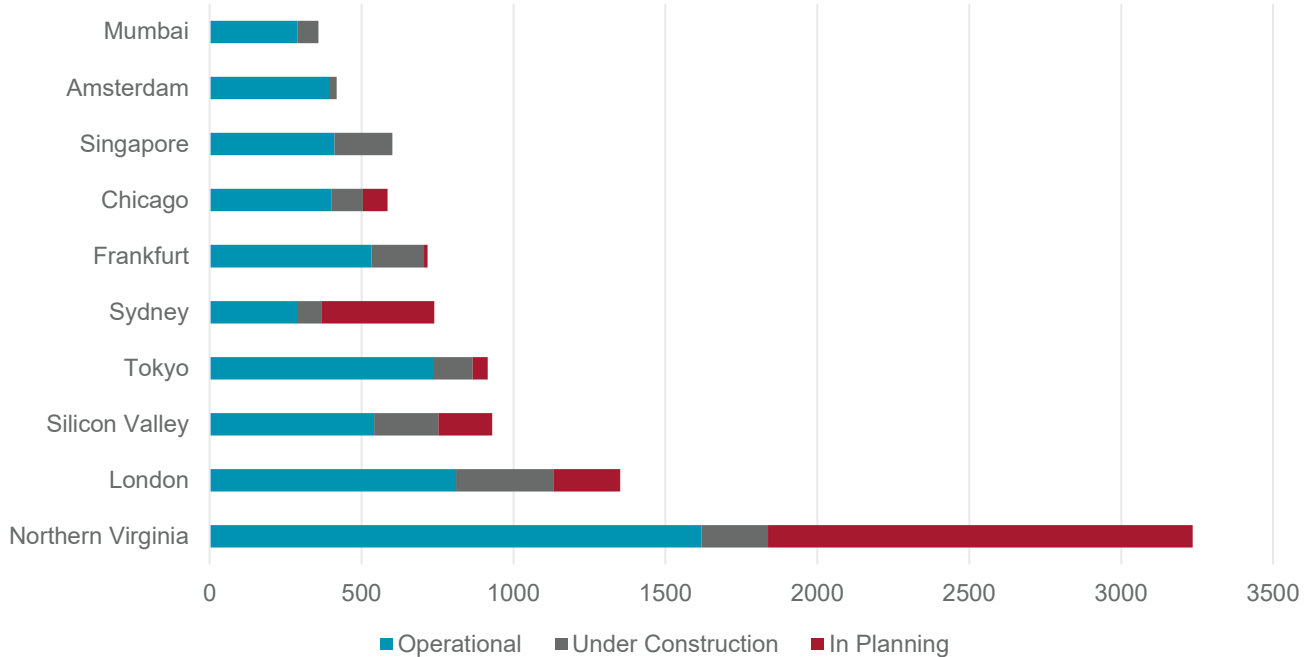
Data center occupiers looking for cost savings and to achieve social responsibility and sustainability imperatives will increase their efficiency demands...

INVESTORS

...so data center owners and operators are investing capital into improvements to these inefficient buildings. This will benefit the bottom line, as efficient data centers have the potential to save nine figures in operating costs over their operational life.

MARKET CONSTRUCTION TOTALS

Major Growth in Key Areas (MW)



Source: C&W Research

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