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- Data centres are unique technically advanced buildings that are sought-after based on their ability to provide connectivity, cooling and power.
- Chicago's East Cermak is a unique carrier neutral network dense co-location data centre focused on financial sector users.
- Many data centres are sourcing off-site renewable energy and undertaking technology upgrades to reduce energy intensity and GHG emissions.

It's hard to imagine this non-descript heritage building, located in the South Loop downtown Chicago area, is the City's most valuable.

Valued at over \$US2 billion¹, 350 East Cermak is not only one of the most inter-connected buildings in the United States, it's also one of the largest data centres in the world.

East Cermak is one of our data centre exposures we invest in through our global property portfolio. We did a tour of the property during our recent visit to the United States.

On this site visit we were particularly interested in seeing first hand some of the building's unique features, including its inter-connection architecture, backup power generation and cooling systems. These features and the prime location leave this asset in high demand from users and why it's one of the leading data centres in the US.

Given the importance we place on carbon emission measurement and reduction in our portfolios, we were keen to understand the centres systems and technology to gauge the buildings current energy efficiency and carbon intensity.



Image Source: First Sentier Investors

Beyond the façade

East Cermak has over 1.1 million square foot of gross lettable area and draws on over 100 megawatts of power from three separate grids. To put its power output in perspective, it's the equivalent of the amount of power used by 100,000 households.

The building was originally built in 1912 by the R.R. Donnelley Co. to house the printing presses, which at the time was the largest building dedicated to printing in the United States.



Image Source: First Sentier Investors

The building's engineering was ahead of its time to cater for the weight of the large steel printing presses. Its structure is ideal for data centre use, and was purchased by Digital Realty in 2005, which is one of our portfolio's top 10 holdings.

1. First Sentier valuation as at August 31, 2022

The site itself has an unusual confluence of two interconnection ecosystems, from an internet exchange and a financial exchange.

The ecosystems create significant competitive advantage for users. The building has over 70 fibre providers, over 100 content providers and close proximity to network, cloud, and content ecosystems available within the metro. East Cermak has over 500 tenants and is one of the most interconnected network dense data centres in the US.²

East Cermak services many data-heavy entities including the Chicago Mercantile Exchange (CME). When it comes to servicing activities like high frequency trading offered by CME, time is money, and every millisecond matters. Having a data centre with extensive capacity and connectivity close to where transactions happen offers financial tenants a significant advantage.

Unique Infrastructure

The grid power of East Cermak is supported by more than 50 generators throughout the building, which are fuelled by multiple 110,000 litre tanks of diesel fuel that provide backup electricity in the unlikely event that all 3 electrical grids went down.³

The building's cooling system, is supported by an 8.5 million litre tank of a refrigerated brine water. The huge tank is 50% owned by Digital Realty with the Metropolitan Pier and Exposition Authority (MPEA). The building draws on the large cooling tank for approximately 50% of its cooling needs which it also shares with the surrounding city blocks.⁴

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The building's original design contains four large core lift wells that would ferry large paper rolls and printed materials up and down the building. These risers today contain power and fiber conduits for buildings' servers. Standing in the basement at the bottom of the large shafts we could feel the heat emanating out of the 12 inch concrete walls as the heat from the servers decimates through the building.



Image Source: First Sentier Investors

Emissions and data centers

Data centres, as a function of their very high energy intensive operations, emit larger levels of carbon than other types of real estate. Reducing Power Usage Effectiveness (PUE) is essential to lowering energy intensity. PUE is a measure how much of the data centre's total energy is used by the servers. A very efficient data centre would have a PUE of under 1.3, that is the servers use 1 unit of power for the total centre usage of 1.3 units of power.

Modern data centres through design, efficient cooling systems and smart metering and sensors are able to optimise energy use for higher data server output. Additionally, sourcing offsite renewable power and carbon offsets are essential to reducing carbon intensity.

2. Digital Realty disclosure and engagement

3. Digital Realty disclosures

4. Digital Realty disclosures

Digital Realty was the first data centre operator of its size and global reach to join the Science-Based Targets Initiative (SBTi). The company has committed to reducing Scope 1 and 2 emissions (controlled direct and indirect company emissions) by area by 68%, and Scope 3 emissions by area by 24% by 2030 from a 2018 baseline.

The investment opportunity

The asset produces approximately \$80m of Net Operating Income (NOI). The space is in high demand, with the occupancy rate currently 95%. Digital Realty has the opportunity to grow NOI over time by raising rents and converting more wholesale customers (40% of rent) when leases expire to higher paying retail customers. With the rapid growth in data consumption and cloud computing, this unique asset is well placed to generate compelling investor returns for decades to come.

Digital Realty Operational Net Zero Forecast



Source: First Sentier Investors proprietary carbon methodologies

Company metrics are sourced from Digital Realty disclosures and from direct engagements with Digital Realty. First Sentier Investor proprietary methodologies are also used to obtain metrics in the article. Financial metrics and valuations are from FactSet and Bloomberg. As at 30 July 2022 or otherwise noted.

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