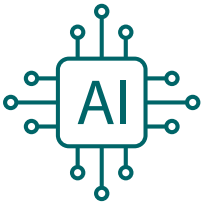
VAN LANSCHOT KEMPEN

INVESTMENT MANAGEMENT

Market Musings 12/24

For Professional Investors only

A.I. meets Infrastructure



A tale of data storage, energy efficiency and investment opportunities

Fuelling the AI ecosystem

The AI revolution is driving an explosive demand for data storage and processing power, transforming data centers into a booming business. The surge in AI workloads and deployment capacity significantly increases electricity needs, creating power availability constraints but also opening up opportunities for companies in the utilities, midstream and even nuclear energy which can support additional electricity generation. As the infrastructure underpinning our digital world is rapidly evolving, this propels sustainable innovation and growth with numerous investment opportunities in the infrastructure space on the horizon.

The Data Center Revolution... add three zeros

Data centers are experiencing record growth and investment, driven by the rise of AI and the continued expansion of cloud computing. Projections forecast a staggering USD 2 trillion investment over the next five years. AI workloads are expected to grow by 25% to 35% annually through 2027. This could spur a material increase in the capacity of one single data center from today's 50-200 megawatt megawatt to over a 1 gigawatt for the newly built centers. This year, the US is set to add 5 gigawatt of data center capacity, accounting for about 1% of the nation's total power consumption while new data centers announcements through the first half of 2024, already exceeded the entirety of 2023.[1]

The ASEAN region, though behind the US, also shows immense growth potential in the data center market. With an average utilisation rate of 84%, the strong demand for data center services signals a need for capacity expansion. Projections indicate the region's data center capacity will reach 8 gigawatts by 2028, up from 1.7 gigawatt today. Important to note is that this explosive growth comes with a very strong pricing environment and an increase in the average contract duration pushing both returns and cashflow visibility at all-time highs.[2] Thus the current landscape makes data centers a prime investment opportunity within the infrastructure asset class to capitalise on the AI boom.

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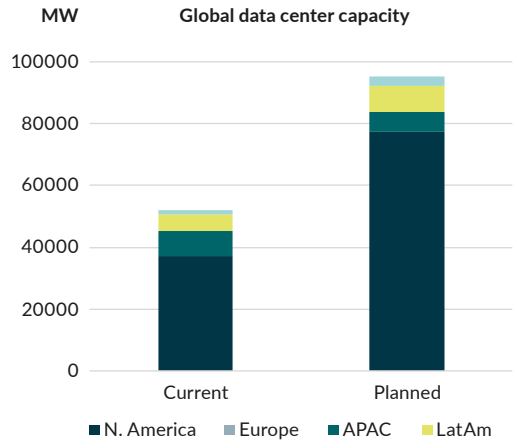
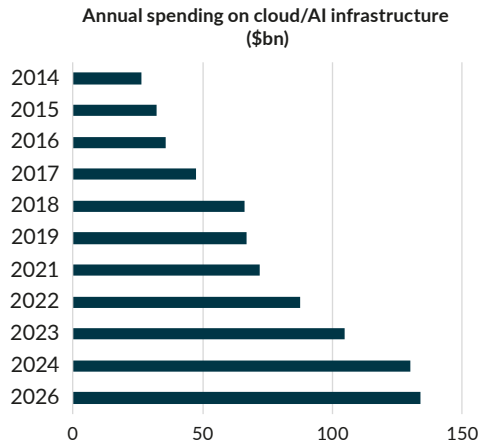
[1] International Energy Agency, 2024
[2] DC Bytes, 2024





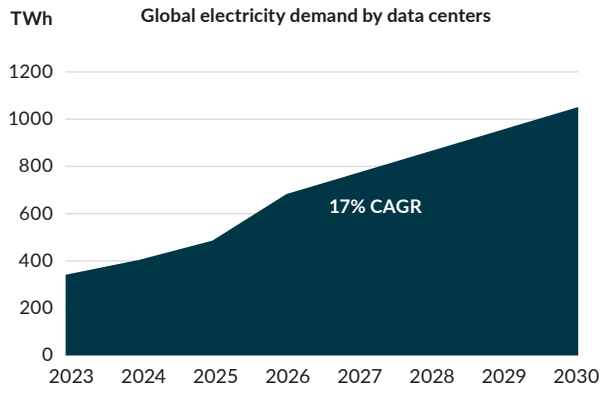
Source: IEA, 2024

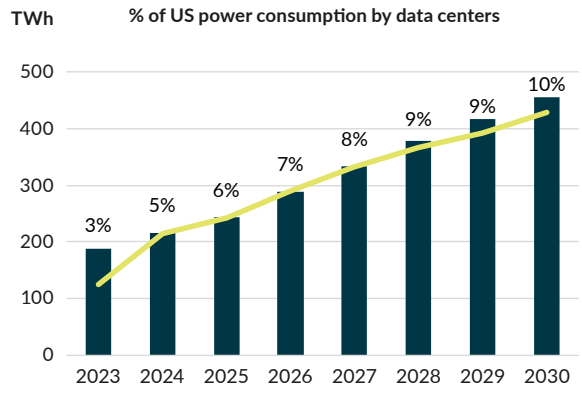
A hunger for power

The rise of data centers, however, presents a new challenge for power availability. AI's impact on power consumption is striking: a ChatGPT query uses 10x the power of a Google search, while AI-generated content can consume 50x more power.[3] The simultaneous electrification of "everything" and industrial reshoring is expected to foster a 2-3.5% CAGR[4] growth for power demand through 2030, after two decades of stagnation. The power demand by data centers alone will grow by a staggering 17% per annum (CAGR) in the next few years.[5]

The US would need to double its power grid capacity over the next decade to keep pace with demand. Current estimates forecast that data centers will use 8% to 10% of US power by 2030, up from approximately 3% in 2022.[6] The U.S. Department of Energy (DOE) has announced significant funding initiatives, including over $30 billion from the Bipartisan Infrastructure Law and the Inflation Reduction Act.[7] This represents a significant investment opportunity for utility companies, which earn a regulated return – the higher the investment, the higher the return.

Similarly, the ASEAN region is expected to see a four-fold increase in data center capacity by 2028, with countries like Singapore, Malaysia, and Indonesia emerging as key players.[8] Meeting the increased capacity will require significant growth in power generation. Countries that effectively address these power challenges will gain a competitive edge in attracting data center investments.





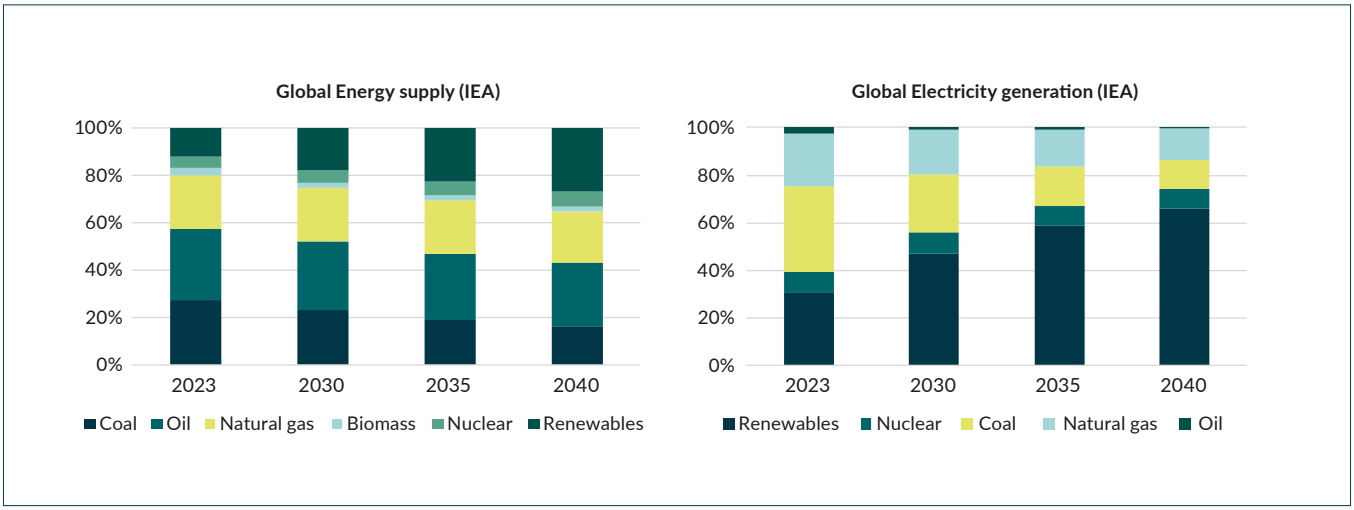
Source: datacenterHawk 2024

[3] Cisco, 2024
[4] The compound annual growth rate represents the mean annualised growth rate for compounding values over a given time.
[5] datacenterHawk, 2024
[6] International Energy Agency, World Energy Outlook 2024
[7] The White House, 2023
[8] DC Byte, 2024

The energy game: Spread and mix

The doubling of the global electricity demand by 2030 will significantly impact local electricity markets. Balancing the load of the (now 11,000 registered) data centers worldwide across regions/countries and expanding energy sources is crucial to resolve or avoid power availability constraints. While enhancing grid capacity becomes imperative, modernising the aging congested power grid is a complex and costly endeavour, often facing construction and permitting delays.

To meet the burgeoning electricity demand in the short to medium term, natural gas can offer a flexible, reliable and efficient bridge, especially with the anticipated retirement of coal plants. This could also provide opportunities for investors, since it is estimated that this increased need for natural gas would require new pipeline capacity to be built, thus creating a structural tailwind for gas pipelines. However, in the push towards decarbonization, natural gas can't be the only solution. Renewables like wind, solar, and hydro remain crucial for long-term sustainability. According to IEA, clean energy is entering the energy system at an unprecedented rate, with more than 560 gigawatts (GW) of new renewables capacity added in 2023.[9] This promising number however disguises the fact that deployment is far from uniform across technologies and countries.



Source: IEA World Energy Outlook 2024, according to stated policies

Last but not least, it is nuclear energy that increasingly emerges as a key component in meeting growing energy demand and climate goals. Governments are turning more positive and companies are restarting old plants as the benefits of zero-emissions, high energy density, and ability to provide stable, reliable power make nuclear a more attractive choice.

Advances in technology, particularly the development of small modular reactors (SMRs), which offer flexibility, reduced cost and less manufacturing time, enhance nuclear's appeal. Additionally, the Production Tax Credit (PTC), under the US Inflation Reduction Act, provides financial incentives for nuclear generated electricity, making it more economically viable.

The US govt recently committed to adding 200 gigawatt of net new nuclear capacity by 2050, which would triple current capacity, with the first 35 gigawatt targeted by 2035 (not yet included in the IEA future looking energy capacity estimates). We also, see potential for the Trump administration to provide additional support to nuclear under the US energy independency prism.

[9] International Energy Agency, World Energy Outlook 2024

Sustainability is a competitive advantage

We see sustainability gaining weight for data centers. In a market where energy efficiency and environmental responsibility are becoming key differentiators, sustainability provides a significant competitive advantage, driving growth and long-term success.

With power availability issues stemming from a congested grid, data centers that prioritise sustainability can operate more efficiently, reducing their energy consumption and costs. This in turn makes them more attractive to utility companies and municipalities, which are increasingly favouring sustainable practices to meet regulatory and environmental goals and need to distribute scarce power in a fair way.

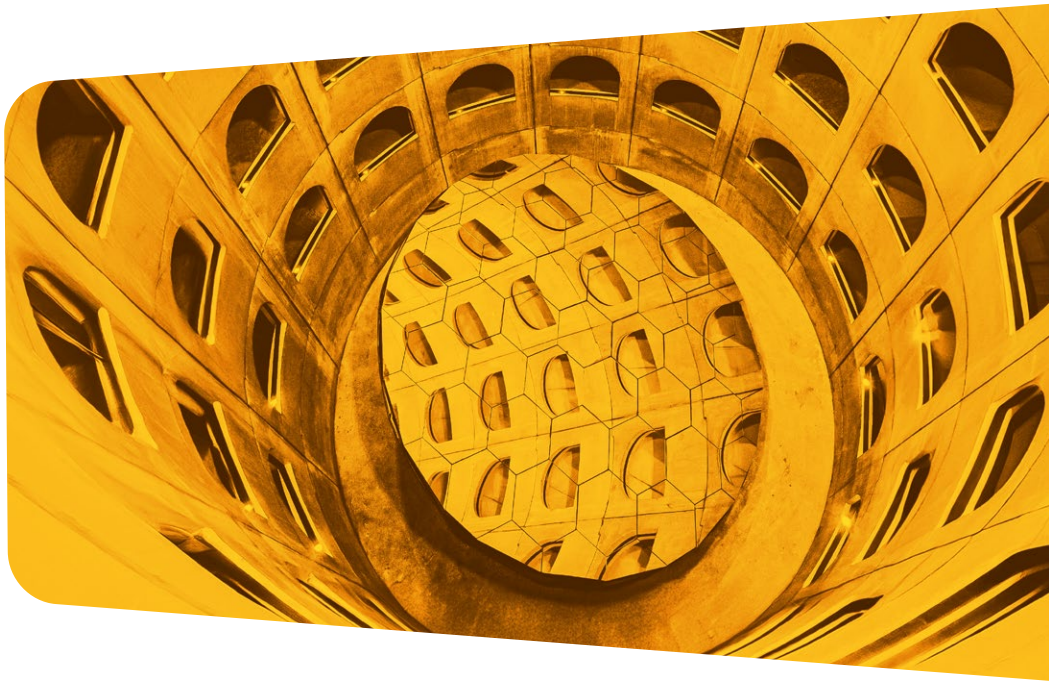
In addition, sustainable data centers are also better positioned to secure contracts and partnerships with key customers such as banks or government agencies, as they can offer more reliable and eco-friendly services. And finally, by adopting renewable energy sources and innovative technologies, data centers can enhance their resilience and future-proof their operations.

How Infrastructure can help to power up your portfolio

With the A.I. wave unfolding in front of our eyes, the increasing demand for data centers, the necessity for expanded and modernised utilities and the shift to cleaner energy sources creating new opportunities for investors across multiple sectors within the infrastructure universe.

Guided by our motto ‘’Asset specific – Macro neutral alpha’’, the infrastructure team of Van Lanschot Kempen seeks out companies that we consider to be the winners of tomorrow. Companies across industries and themes that affect our everyday life, but with limited exposure to macro factors and remaining within the benchmark weights. Moreover, we identify infrastructure based on a company’s earnings rather than its revenues, while our idea generation involves seeking beyond the beaten path to find undiscovered or underrated gems across the globe.

While every new theme (e.g. A.I. and power demand) brings excitement and can push sector returns higher collectively, over the long-term picking the right companies and having an active portfolio is in our view the way to help secure superior returns: the tide may rise all boats for some time, but that doesn’t last forever.



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Listed Infrastructure: general risks to take into account when investing in Listed Infrastructure strategies.

Please note that all investments are subject to market fluctuations. Investing in a Listed Infrastructure strategy may be subject to country risk and equity market risks and risks specific to the infrastructure market, which could negatively affect the performance. Under unusual market conditions the specific risks can increase significantly. Historic data for similar investment vehicles indicates that the strategy can carry an aggressive level of risk.

Potential Investors should be aware that changes in the actual and perceived fundamentals of a company may result in changes for the market value of the shares of such company. The strategy is allowed to invest in financial derivatives and (short-term) money market instruments. Currency exposures may be hedged.

Capital at risk. The value of investments and the income from them can fall as well as rise and are not guaranteed. Investors may not get back the amount originally invested. Past performance provides no guarantee for the future.

Profile of the typical investor in Listed Infrastructure strategies:

The strategy may be suitable as a core or supplemental investment for those:

- interested in a convenient way of gaining exposure to global listed infrastructure companies (international equity markets);
- seeking long-term growth of their investment (5 years or longer);

who can bear the possibility of significant losses, especially in the short term.

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