



The interplay between AI development and climate goals underscores the need for innovative solutions and strategic planning to balance these priorities effectively. (UBS)

# Clashing priorities: AI and climate risk

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**Microsoft's total carbon emissions have grown by about 30% since 2020, driven largely by indirect emissions from constructing new data centers for artificial intelligence (AI) infrastructure.**

The challenge for Microsoft is one of the very first concrete examples of the clashing priorities between pursuing AI and reducing emissions. Tech companies have been strengthening their capacity in data storage and data processing at breakneck pace to keep up the ambitions for AI and cloud computing. AI surely brings opportunities (as we explored in our [Perspectives report from June 2023](#)), but it is also worth considering how we should manage the relevant risks. Data centers are energy intensive, requiring continuous power and water-intensive cooling systems. According to Goldman Sachs, data center power demand is expected to grow by 160% by 2030, potentially doubling data center carbon dioxide emissions.

The AI race appears to conflict with climate targets. Building data centers with pollutive materials like steel and cement increases emissions in the short term, as green alternatives are not yet commercially viable. For Microsoft, the uptick in emissions from data center construction is likely temporary. Once operational, the focus should shift to reducing emissions from electricity needs, which hinges on clean energy.

The future emissions of tech companies will depend on their electricity sources. Meta, Google, Amazon, and Microsoft have committed to sourcing 100% clean power. Together, they accounted for two-thirds of global corporate power purchase agreements in March, according to data from BloombergNEF. However, the intermittent nature of renewable energy may necessitate natural gas as a solution until mature battery storage is available. US natural gas demand is expected to rise by about 20% from 2023 to 2030, with midstream operators negotiating with data center providers to meet this demand.

Advancing circularity in data center construction and operations is crucial to achieving climate objectives. Microsoft aims to reuse 90% of servers and components within its regional data center network by 2025. This includes minimizing the mining of critical raw materials through recycling and reuse, and implementing more efficient cooling solutions to reduce water consumption.

Extreme weather and water scarcity also threaten data centers and AI. Many data centers are located in arid regions, exacerbating local water supply issues and necessitating innovative water-saving and energy-efficient technologies. In the US—home to half of data centers globally—a fifth of data centers' direct water footprint comes from high-water-risk areas (Siddik et al). Climate-induced extreme weather can increase energy consumption and cooling needs, potentially surging carbon footprints and disrupting data center reliability, exposing them to power shutdowns and cyberattacks.

The interplay between AI development and climate goals underscores the need for innovative solutions and strategic planning to balance these priorities effectively.

### **Takeaways for investors:**

- As companies and countries are unlikely to step back on AI and decarbonization efforts—and while we're missing a full picture of how either will play out—it's crucial to pay attention to the risk and opportunities for both.
- We see opportunities in mitigating AI and climate as a risk to each other through advanced recycling, resource efficiency, and deploying renewables. Investors can focus on companies that manage sustainability-related risks and capture opportunities better than peers.
- The opportunities from AI and climate can also be captured through broader investment themes, including Clean air and carbon reduction, Energy efficiency, Water scarcity, and Circular economy.

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Original report - [Perspectives: Proxy season, AI and climate risk, and mandatory supply chain due diligence, 7 June 2024.](#)

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