

# AI’s sustainability dilemma: How to meet doubling data centre energy demand

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Artificial intelligence (AI) and digital services are experiencing rapid growth. However, while such solutions can play a meaningful role in addressing environmental problems, they are currently facing their own sustainability challenges. Given the huge amount of computing power required, AI and digital solutions come at the cost of high levels of energy consumption and CO<sub>2</sub> emissions. Some data centres require more than 100 GWh – equivalent to the annual consumption of a city with 100,000 inhabitants. While data centres account for about 1.5% of global electricity consumption in 2024, this figure is expected to double to reach 3% by 2030.<sup>1</sup>

Driven by the availability of skilled labour, energy resources, and well-developed infrastructure, North America, Asia-Pacific, and Europe are set to experience particularly significant growth in data centres. In addition to their energy needs, data centres also require huge amounts of water for

cooling, with many facilities consuming millions of litres of water daily, often exacerbating shortages in regions already experiencing water stress.

Renewable energy, whose costs have significantly decreased in recent years, stands out as a competitive and readily deployable solution to meet the growing energy demands of data centres in a sustainable way, hence lowering their environmental burden. Major companies are also investing in advanced cooling technologies, such as immersion cooling or the use of outside air in cold climates, to reduce both water and energy consumption. While promising, these solutions are still far from sufficient to make AI sustainable. Additional safeguards and collaboration between industry players, researchers, and governments will be required to balance innovation and sustainability.

1 International Energy Agency. 2025. Energy and AI. <https://www.iea.org/reports/energy-and-ai>

Figure 1: Global data centre power demand set to double by 2030  
Source: S&P Global Commodity Insights 451 Research, Note: Low-end case

