

## Embracing the AI-Energy-Climate Nexus

*By Sultan Al Jaber*

ABU DHABI – Six months ago, at the United Nations Climate Change Conference in Dubai (COP28), the world transcended geopolitical divides – something few believed possible – and united behind a realistic plan, known as the UAE Consensus, to promote sustainable prosperity and address the threat of climate change. Nearly 200 governments and all sectors of the global economy coalesced around a practical, science-based pathway for achieving low-carbon economic growth while keeping 1.5° Celsius within reach.

The key to the agreement's success was [inclusivity](#): no one was excluded, no industry was sidelined, and no solution was off the table. As we move to implementation, the world must leave no stone unturned to accelerate progress. Specifically, that means embracing artificial intelligence, which promises to have a far-reaching, transformational impact on the energy transition and is projected to add \$7 trillion to global GDP over the next 10 years.

[\[Generative AI Could Raise Global GDP by 7% \(goldmansachs.com\)\]](#)

It is difficult to overstate the potential of AI in the fight against climate change. This evolving technology can change the pace of progress by redesigning industrial processes, optimizing transport systems, maximizing energy efficiency, and minimizing emissions at scale. AI will also strengthen our adaptive resilience through innovations in agriculture, water security, and health.

But AI development will necessarily lead to a surge in energy demand. Resolving the contradiction between AI's thirst for electricity and its potential to accelerate a just transition will require technology and energy firms to cooperate in new and creative ways.

There are grounds for optimism. AI is already driving efficiency gains across industries. Through AIQ, its technology joint venture with G42 and Presight, ADNOC has used predictive maintenance and machine-learning tools to reduce carbon dioxide emissions by more than a million tons in just one year [\[ADNOC says AI added \\$500 mln of extra value in 2023 | Reuters\]](#). Other power companies are using neural networks to mitigate the intermittency and storage challenges of renewable energy by forecasting weather patterns and preempting peaks and dips in usage.

In material sciences, researchers are using AI to [identify](#) the molecular structures best suited for carbon capture. The technology is also transforming agriculture, another energy-intensive sector, by analyzing micronutrients, enhancing crop yields, and minimizing water use by as much as 40% [\[AI in Agriculture: Crop Monitoring and Precision Farming | by Jam Canda | Medium\]](#). Over the next five to ten years, AI is expected to enable breakthroughs in fusion, hydrogen, modular nuclear power, long-term battery storage, and as-yet-unimagined climate solutions.

The flipside to AI's transformative potential is its insatiable energy consumption, which is putting additional stress on an already stretched power system. Since 2019, emissions from the largest AI firms have increased by more than 30% [\[Microsoft's emissions soar by 30%: Why is it building more data centres and what is their impact? | Euronews\]](#). By 2030, the number of data centers is expected to double worldwide, owing to the technology's vast processing needs, and these new operations could consume as much electricity as Canada [\[AI is poised to](#)

[drive 160% increase in data center power demand \(goldmansachs.com\)](https://www.goldmansachs.com)]. Bridging this gap will be difficult, as no single energy source is currently capable of meeting such a huge leap in demand.

Major tech companies are starting to collaborate with energy companies to face this challenge head-on. In May, Microsoft and Brookfield closed a deal to develop [10.5 gigawatts](#) of renewable capacity by 2030. Masdar, the United Arab Emirates' leading renewable-energy company, is on track to quadruple its capacity to [100 gigawatts](#) by 2030 and is exploring opportunities to supply the tech sector with clean electricity. There is also increased investment in nuclear-powered data centers, although these will take [decades](#) to build. In the interim, up to 200 billion cubic meters of natural gas – the least carbon-intensive fossil fuel – per year will be needed, as will significant investment in global grid infrastructure to cope with increased demand.

Adopting a holistic approach is critical to addressing these problems and reaping AI's potential benefits. To that end, I am convening a "Change Makers Majlis" – a *majlis* being a traditional gathering that encourages the exchange of diverse perspectives – in Abu Dhabi in November to discuss AI and the energy transition. Business leaders from the energy and technology sectors, policymakers, investors, and civil-society organizations will come together to reimagine the relationship between energy, AI, and inclusive economic growth.

Given the UAE's history as a responsible energy supplier, our longstanding commitment to sustainable development, and our emergence as a leader in AI, with investment platforms like MGX, infrastructure developers like G42, and the region's largest and fastest-growing large language model, Falcon, we are keen to bring all relevant stakeholders together on an issue of profound importance to all humanity. By building a bridge between energy and AI, we can help realize the UAE Consensus and, in doing so, take advantage of the greatest economic opportunity since the first Industrial Revolution.

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