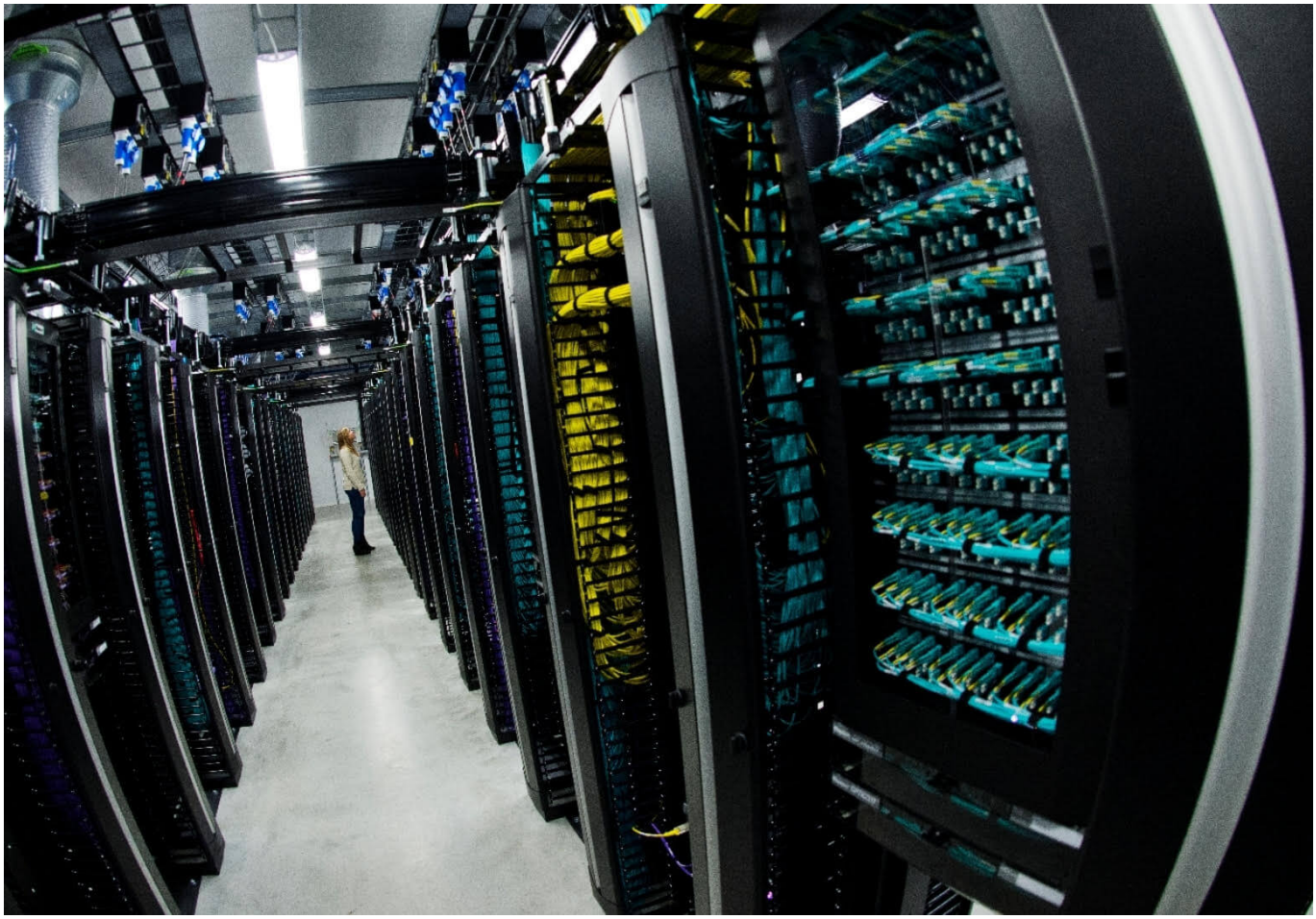
Tomorrow's Affairs
Analysis of today
Assessment of tomorrow

By: The Editorial Board

Will AI destroy what it was supposed to save?



A surge in the use of artificial intelligence models caused considerable concern among energy and climate analysts. According to relevant estimates, training a large language model can require more electricity than an average household consumes in an entire year.

If hundreds of thousands of such models being developed in parallel around the world are taken into account, one indisputable fact emerges: the digital revolution led by artificial intelligence (AI) is bringing with it an ecological counter-revolution.

According to a 2024 report by the International Energy Agency (IEA), information and communication technologies (ICT), including data centres, account for between 5 and 7 per cent of global electricity consumption.

This figure is increasing month on month, fuelled by the explosion in the use of generative models, blockchain infrastructure, and intelligent device networks (IoT).

While these technologies are essential for the modern economy, their energy footprint is increasingly impeding the achievement of international climate targets.

Artificial intelligence is often presented as a tool for achieving sustainability—optimising consumption in energy networks, predicting weather disasters, and helping with smart agriculture.

However, the infrastructure that powers this artificial intelligence is based on energy-inefficient models, large amounts of wasted water, and, often, fossil fuels.

For example, training a model such as GPT-4 for a few days generates carbon dioxide emissions equivalent to dozens of transatlantic flights. Compared to traditional industries, this is an extremely concentrated and continuous burden on energy grids.

Data centres, especially those that operate 24/7, will consume more electricity in 2025 than some smaller countries.

Energy-efficient and climate-friendly digital infrastructure

The European Union is introducing regulatory measures aimed at making digital infrastructure, especially data centres, more energy-efficient and climate-friendly.

Directive (EU) 2023/1791 on energy efficiency, which came into force in November 2023, stipulates that from 2024, all large data centres in the EU must regularly report on energy consumption, cooling efficiency, power sources, and the use of renewable energy.

By 2030, member states must reduce their overall final energy consumption by 11.7% compared to forecasts, with data centres being treated as an infrastructure priority in this process.

As part of the broader REPowerEU plan, the European Commission has set itself the target of increasing the share of renewable energies in the overall energy mix to at least 45% by 2030.

Although REPowerEU itself does not prescribe binding quotas for data centres, these units are increasingly seen as keys to achieving the goals of the Green Plan and the energy transition.

> More than 70 per cent of the energy mix in Texas in 2024 was gas and coal

At the same time, the Commission is considering additional recommendations that would limit the consumption of cooling water and introduce minimum efficiency standards for all new data centres in the EU.

However, the question arises as to whether the stricter regulations will jeopardise European competitiveness compared to the USA and China.

American and Chinese AI giants—from Google and Microsoft to Tencent and Baidu—are

investing billions of dollars in building new data centres, often in regions with lax regulations and access to cheap but dirty energy sources.

In Texas, for example, more than 70 per cent of the energy mix in 2024 was gas and coal, but that hasn't stopped companies from opening dozens of new AI infrastructure campuses there.

The global burden of AI energy consumption

An even more serious aspect of the energy crisis caused by AI centres is their uneven geographic distribution.

While wealthy countries can afford to switch to renewable energy—with serious government investment—countries in the global South, such as India, Brazil, or Nigeria, often cannot even meet the basic needs of their inhabitants, let alone invest in expensive green digital infrastructure.

In India, for example, only 20% of electricity came from renewable sources in 2024. And while this country is ambitiously developing its own AI sector, this actually means an expansion of coal- and gas-based energy capacity.

> The global funds for the green transition focus mainly on physical infrastructure and do not include digital infrastructure

The result is a spiral of emissions and climate impacts that hit these very countries in the form of floods, droughts, and reduced agricultural production.

The global funds for the green transition focus mainly on physical infrastructure—wind generators, solar panels, and power grids.

Most of these funds do not include digital infrastructure, even though it is expected to be the most important energy consumer in the next ten years.

Without the recognition of data centres as strategic energy consumers, the global distribution of the burdens of climate change remains profoundly inequitable.

A cosmetic correction

Companies at the forefront of AI model development are increasingly emphasising that they are optimising algorithms to reduce energy consumption.

In 2025, Microsoft announced that it would use only renewable resources in its data centres by the end of the decade. As early as 2024, Google announced that it had managed to reduce energy consumption for cooling in some centres by 30% with the help of AI.

> A single solar farm cannot keep up with the pace of 100 new models trained by OpenAI or Meta in a quarter

However, this is not a technological revolution but a cosmetic correction. The speed at which demand for AI services is growing—from healthcare automation to financial derivatives markets—far outstrips the pace of innovation in energy efficiency.

A single solar farm cannot keep up with the pace of 100 new models trained by OpenAI or Meta in a quarter.

In the background, there is also a tentative debate about using small modular nuclear reactors (SMRs) to power future data centres.

However, despite all the optimism, these reactors will not be commercially available before the end of the decade. Until then, the most important energy sources for digital development will remain networks based on gas, coal, and hydropower.

Replacing one dependency with another

If current trends continue, the world faces a paradox in which artificial intelligence—a tool that could optimise our energy systems, improve climate forecasts, and promote the development of renewable sources—becomes the main cause of a new energy crisis.

The EU is trying to lead the way in setting sustainability standards, but without broader global cooperation and a clear recognition of problems in data centres, this will not be enough

The question is no longer whether AI infrastructure will become the biggest consumer of electricity, but when.

According to forecasts by several independent research institutes, data centres could consume between 10% and 15% of the world's total electricity consumption by 2030—a figure that is twice as high as today.

If an international framework for energy and environmental regulation of digital infrastructures is not implemented in the meantime—which would include not only the EU but also the US, China, India, and Brazil—the world risks replacing one dependency (on fossil fuels) with another (on energy-unsustainable digital infrastructures).

The AI revolution is already underway, but its energy costs are just beginning to materialise. The European Union is trying to lead the way in setting sustainability standards, but without broader global cooperation and a clear recognition of problems in data centres, this will not be enough.

It is not sustainable for European companies to be subject to strict rules while their competitors from America and Asia expand unrestricted, nor is it fair to blame the consequences of climate change on those who are not even in the AI race.

Artificial intelligence can be an ally in the fight for a more sustainable planet. But to do so, it must first become energetically responsible. Otherwise, the tool of the future will become a threat to the present.