Artificial Intelligence and the Risks for our Environment

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Artificial Intelligence (AI) poses significant risks for our environment. Electricity and water consumption are its most prevalent contribution to the ongoing climate crisis. This essay uses the FIVER model and Tony Jaques' pre-crisis mangagement framework to assess these risks and propose policy-focussed mitigation strategies. The analysis emphasizes the need for more transparency, and regulatory intervention to address AI's impact on our environment.

Introduction

The rise of AI brings potentially wide-ranging consequences and contributions to the ongoing climate crisis. These risks must be evaluated seriously. Particularly, Generative AI introduces unintended environmental risks. In a risk society, where risk is created by the powerful few and is born by the powerless individual (Beck et al., 1995), it is paramount that regulators take preemptive measures.

This essay will deal with the impact artificial intelligence could have on our environment and focuses on the most influential drivers to derive policy recommendations.

The risks posed by recent developments in artificial intelligence are manifold and the amplitude of consequences is not yet realized by lawmakers. In 2025 AI's carbon footprint AI exceeded the footprint of New York City, which houses over 8.5 million inhabitants. Increasing demand for datacenter capacity is driving an influx in energy needs, and increasing the fresh-water consumption. (de Vries-Gao, 2026)

AI related water consumption could exceed the annual bottled water consumption—446 billion liters (de Vries-Gao, 2026). This is especially worrying, as we are entering an era of water bankruptcy, where key parts of the water system could not be rehabilitated. $\frac{3}{4}$ of humanity already live of humanity lives in water-insecure countries, 1.8 billion people experienced drought conditions in 2022-2023 (UN, 2026).

Methodology

The explosion of AI computing capacity demand necessitates preemptive regulation. As Fink (1986) stated, prodromes—early signs of illness—signal a pre-crisis phase, where proactive action can mitigate larger consequences.

This policy-focused framework ensures regulations address environmental risks preemptively. This essay combines Jaques' crisis prevention framework (Jaques, 2010) with the FIVER issue management model, a flexible framework for addressing diverse issues. It consists of 5 steps: Understand the situation and interpreting signals, identify specific issues, assess risk, adapt changes, Respond and communicate the issue. (Fuglseth, 2026)

1. Assessing the impact and proactively addressing underlying systemic causes of each driver
2. Identifying key stakeholders and their perspectives
3. Establishment of effective signal detection mechanisms
4. Policy changes that should be implemented

Analysis

Energy Demands

The International Energy Agency (2025) projects datacenter electricity consumption to reach 945 TWh by 2030—a 2.3-fold increase from 2024—surpassing Germany's 2025 consumption of 526 TWh (Umweltbundesamt, 2026). With wider AI adoption this figure could exceed 1260 TWh.

These projected figures are potentially underestimating the growth in energy demand. From 9.4 Gigawatts in 2024, de Vries-Gao (2025) projected a demand of 23 GW in 2025. Empirical data shows this projection underestimated the demand by significant margin (Sajadieh et al., 2026). The actual data showing approximately 29.6 GW of power. Short-term underestimates suggest long-term projection will also fall short of the tangible carbon footprint.

Through the lifetime of an AI-Service the overwhelming majority of energy consumption stems from inference, not training. In contrast to the training process, which is offset over the lifetime, inference—using a trained AI model to make predictions on new data—related electricity consumption occurs each time end-users interact with the service (Berthelot et al., 2024). Therefore, as adoption of AI services increases, the carbon footprint scales manifold, driven by both rising user numbers and exponential growth of model sizes, as predicted by scaling laws (Kaplan et al., 2020; Hoffmann et al., 2022).

The rapid expansion of the AI industry and the subsequent scramble for computing power hampers the goal of climate neutrality at best and amplifies the use of dirty energy at worst. The International Energy Agency (2025) projects that carbon intensive energy sources, required to meet addtional additional electricity demand, could contribute over 40% of electrity in 2030. While this share would see a relative decline by 15%—in comparison to 2026 (Aczel et al., 2026)—the absolute dirty energy contribution could increase twofold. Consequently more coal and natural gas power plants could be built, accelerating the climate crisis rather than containing it.

Enthusiasts proclaim the short term emissions are a necessary trade-off, claiming AI could potentially solve the climate crisis. This claim is overly optimistic. While specialized applications could contribute to a climate transition (Stern et al., 2025), the models attracting major investment—generalized, power-hungry Large Language Models—consume vast resources without providing any climate benefits.

Climate NGOs warn about the impact of AI on global warming and reject the claim that AI has benefits for the climate (Greenpeace, 2025). They found the claim "AI benefits the climate" to be an attempt of greenwashing (Beyond Fossil Fuels, 2026).

The AI industry remains unconcerned about their impact on the environment. While more electricity consumption does not inevitably lead to more more carbon emissions,

cases as the xAI Datacenter in Missisippi suggest that if not for regulatory intervention, a significant part of the additional electricity could stem from carbon intensive sources (Kerr, 2026). This indifference necessitates mandatory transparency and carbon neutrality standards in order to enforce climate goals.

Lack of transparency creates a critical signal detection failure, as most companies do not share the figures required to detect impending crisis (de Vries-Gao, 2026). Without comprehensive reporting by datacenter operators and AI enterprises, monitoring the scale of the problem and identify early warning signs, becomes an impossible task.

Water Usage

Water-intensive cooling systems required for increasingly energy intensive AI-systems pose major risks for freshwater resources. The most popular solution is evaporative cooling. Marketed as being less energy demanding, these systems are common in large-scale datacenters. While being effective at dissipating heat, large amounts of water are squandered and permanently removed from the water cycle (Herrera et al., 2025). Thus shifting the problem from water-intensive energy production to a water intensive cooling system.

Some argue the benefits of artificial intelligence outweigh the water stress it poses. While significant advancements have been made, they typically have been in specialized models, with a negligible environmental footprint. For Large Language Models however, the adverse is true—being only expected to provide moderate macro-economic gains (Filippucci et al., 2024). The UN estimates the water footprint of datacenters to reach 9.3 trillion liters by the end of the decade (Aczel et al., 2026). This estimate only accounts for conservative development. In a lift-off it could grow to 12 billion liters. The By the end of the decade, datacenters could consume as much fresh-water as 1.7 billion people. Virtually every 2nd liter stems from fossile energy sources. Carbon intensive energy sources consume 2-3 liters per KWh (Herrera et al., 2025). This could translate into 3,78 trillion liters consumed annually, just for electricity generation. Thus stressing the importance of transitioning to clean energy sources.

The stress AI puts on fresh water resources exacerbates the state of water bankruptcy. The UN (2026) warns that water resource loss may be irreversible, with over-extraction being a major factor in water scarcity. As freshwater supplies dwindle, billions of people face famine, conflict, and health crises, making AI's contribution to water bankruptcy a matter of life and death for many.

The AI industry affirms it is committed to water efficiency. Critics call it disingenuous, partially because major actors lobbied EU lawmakers to hide statistics behind confidentiality (Nico Schmidt and Ella Joyner, 2026).

Residents living near datacenters cannot drink their water, due to contamination and fear for their water supply. Construction and operation contaminate the groundwater so

much, that residents are afraid to the drink it. The water pressure is low and locals fear for their water supply (Fleury and Jimenez, 2025).

Policy Implications

Without targeted policy on the issues in the AI age, the damage of artificial intelligence to the climate crisis could be significant. While the issues AI poses are discussed in the public domain, the extent of its impact is commonly neglected. The climate change is not visiting, it is knocking at the door and here to stay. the only question is: How bad will it get?

The projections signaling the expansion of dirty energy sources to meet AI's power demands should alarm regulators. To combat this issue, regulations should reflect the goal of carbon neutrality. Tackling this problem would have positive secondary effects in regards to freshwater shortages, which have become an increasingly bigger problem. Operators of new datacenters must achieve 100% carbon neutrality, with existing ones required to comply after a transition period.

Wasting water on AI's promises in a world already facing freshwater bankruptcy is a reckless gamble. Reports affirm projects contributing to district heating are already yielding positive results (Yuan et al., 2025). Hence compelling datacenter operators to contribute excess heat into the district heating system would make a positive impact, rather than degrading scarce water resources.

People should not be deprived of freshwater in favor of tech enterprises. Recent heat waves, even in moderate climates, highlighted the importance of protecting existential resources. The AI industry appears to disregard this assessment. $\frac{2}{3}$ of upcoming datacenters in the US are set to be built in drought-ridden areas (Oliver Milman, 2026). This demonstrates the industries failure to self regulate, thereby necessitating intervention by regulators to mandate that hyperscalers establish the means to upcycle non-potable water, should they consider extensive water consumption necessary.

Sustainability requires transparency. Currently the worst offenders are not obligated to transparency, which hinders efforts to asses the damage. Critics might argue that this is not an oversight, but rather a calculated strategy in order to prevent public scrutiny and evade regulations, that could affect shareholder returns. In order to be aware of all the facts and create the most effective strategy, regulators should order more transparency by the industry.

Conclusion

This essay has demonstrated that AI's environmental risks—particularly energy and water usage—are accelerating at an alarming rate. The prodromes are clear; without intervention, AI could accelerate the climate crisis and escalate the water bankruptcy. However as we are in the pre-crisis phase, proactive policies like carbon neutrality mandates, cooling alternatives, and transparency obligations can still avert the worst outcomes. The time to act is now.

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