



From Algorithms to Aquifers: Emerging Environmental Litigation Trends in the Age of Artificial Intelligence

By Joseph M. Gabris

Artificial intelligence (AI) is often described as a digital revolution. Yet beneath the virtual interfaces, machine learning models, and generative AI platforms lies a vast physical infrastructure that consumes extraordinary amounts of electricity, water, land, and computing resources. As businesses race to deploy increasingly sophisticated AI systems, courts, regulators, environmental organizations, and local communities are beginning to confront a question that only recently entered the legal mainstream: what are the environmental consequences of AI, and who bears responsibility for them?

The rapid growth of AI has transformed environmental litigation in ways that would have been difficult to imagine only a few years ago. Historically, environmental disputes focused on traditional industrial actors such as product manufacturers, mining and utility companies, and energy producers. Today, however, some of the most significant environmental controversies involve technology companies and the data centers that support AI systems. These facilities, once viewed primarily as benign components of the digital economy, are increasingly scrutinized for their substantial demands on energy grids, freshwater supplies, air quality, and local infrastructure. As a result, a new body of litigation is emerging at the intersection of environmental law and technological innovation. This developing area of law illustrates a broader reality: although AI may appear intangible, its environmental footprint is anything but.

The Environmental Costs of Artificial Intelligence

Generative AI systems require enormous computational power. Training and operating large language models depends on massive networks of servers housed in data centers that operate continuously. The expansion of AI capabilities has therefore triggered an unprecedented demand for physical infrastructure.¹ The current environmental concerns associated with AI generally fall into three categories: energy consumption, air emissions and climate impacts, and water usage. Together, these issues are shaping the contours of emerging environmental litigation.

First, AI data centers consume significant amounts of electricity. As demand for AI services grows, utilities and grid operators face increasing pressure to provide reliable power to large-scale facilities. A single data center may consume energy comparable to that used by an entire city, raising concerns about grid reliability, increased fossil fuel generation, and rising costs for consumers.²

Second, the energy demands of AI have climate implications. Although some technology companies have committed to renewable energy initiatives, many facilities continue to rely directly or indirectly on fossil-fuel-generated electricity.³ In some instances, developers have explored the use of on-site gas turbines or backup generators to satisfy growing energy needs.⁴

These decisions raise concerns regarding greenhouse gas emissions, air quality, and compliance with environmental permitting requirements. Environmental advocates increasingly argue that data-center expansion must be evaluated through the same regulatory lens applied to other major industrial developments.

Third, and perhaps surprisingly to some, AI has become a significant water-consumption issue. Data centers generate substantial heat and require extensive cooling systems to maintain operational stability. Many facilities rely on freshwater resources to cool thousands of servers operating around the clock.⁵ Scholars and commentators have observed that increasing AI deployment may intensify competition for limited freshwater supplies, particularly in drought-prone regions and heavily utilized watersheds.⁶ Perhaps ironically, many data centers in the U.S. are located in places that have limited water availability, and sometimes in states with relatively strict water rights laws.⁷ As concerns about water scarcity continue to grow, disputes over data center water use are becoming an important component of environmental litigation.

Data Centers as the New Environmental Battleground

Perhaps the most significant environmental litigation trend involving AI revolves around data center development itself. Environmental groups, local governments, and affected communities increasingly challenge proposed facilities through permitting disputes, environmental review proceedings, and traditional litigation. Rather than focusing on the algorithms powering AI systems, these cases target the infrastructure necessary to operate them.

One early example of this is *Municipalidad de Cerrillos c. Comisión de Evaluación de la Región Metropolitana*, in which Chile's Second Environmental Court partially annulled the environmental approval for Google's proposed Cerrillos Data Center.⁸ The court required renewed environmental analysis incorporating the effects of climate change on the project's anticipated water impacts.⁹ Although the case arose outside the United States, it demonstrates how data center projects can become focal points for broader concerns regarding water availability and climate resilience.

Comparable climate-based challenges have arisen elsewhere, including Ireland. In *Doyle v. An Bord Pleanála*, applicants challenging approvals for a large data center and associated substation asserted, among other grounds, that the approvals were inconsistent with Ireland's climate obligations.¹⁰ The case illustrates an evolving litigation strategy that links individual development approvals to broader climate commitments.

Within the United States, litigation has increasingly targeted environmental reviews for large-scale data center projects. In *Center for Biological Diversity v. City of Pittsburgh*, for

example, environmental organizations alleged that the review of a proposed California technology park and data center inadequately analyzed greenhouse gas emissions, water consumption, biological impacts, traffic, and noise under the California Environmental Quality Act.¹¹ Such challenges suggest that what began as isolated disputes may be developing into a more systematic strategy aimed at slowing or reshaping data center development.¹²

In many respects, this litigation follows a familiar pattern. As with earlier waves of climate litigation, plaintiffs are not waiting for AI-specific legislation to emerge; instead, they are testing whether longstanding environmental statutes are sufficiently flexible to address a new generation of industrial activity.

Air Quality Litigation and Clean Air Act Challenges

Another emerging trend involves challenges to emissions associated with powering AI infrastructure. As AI-driven electricity demand increases, some developers have explored alternative methods of securing reliable power supplies. In certain cases, this has included the use of localized gas-fired turbines or backup generation systems. Environmental organizations have responded by scrutinizing whether such facilities comply with applicable air-quality regulations and permitting requirements.

One prominent example is *National Association for the Advancement of Colored People v. X.AI Corp.*, a Clean Air Act citizen suit concerning gas-fired turbines allegedly operated without required permits at a power-generation site in Southaven, Mississippi, serving xAI's Colossus II data center.¹³ The dispute illustrates how traditional environmental statutes can become powerful tools in challenges to AI infrastructure projects. Rather than attacking AI technology directly, plaintiffs focus on emissions sources, permitting obligations, and environmental compliance failures associated with supporting infrastructure.

Environmental justice considerations also play an increasingly important role. Challenges to air permits frequently include allegations that emissions disproportionately affect surrounding communities.¹⁴ As data centers expand into new geographic regions, litigants may continue to frame environmental claims through both traditional regulatory requirements and broader environmental justice principles.

Water Rights and Resource Allocation Disputes

Perhaps the most novel area of environmental litigation involving AI concerns water consumption. The cooling requirements of large-scale data centers create substantial demand for freshwater resources. In regions already experiencing water stress, local governments, environmental organizations,

and community groups increasingly question whether these facilities should receive access to scarce water supplies.

Indeed, there is growing concern regarding the immense quantities of water required to cool AI infrastructure. Legal commentators have noted that increasing AI deployment may place technology companies in competition with municipalities, agricultural users, and other stakeholders for limited freshwater resources.¹⁵

Water-related disputes are not merely theoretical. Public controversy has already arisen over efforts by technology companies to limit disclosure regarding data center water usage.¹⁶ Critics argue that transparency is essential because communities cannot meaningfully evaluate environmental impacts without understanding the scale of resource consumption involved.¹⁷ The resulting disputes raise important questions regarding public record laws, environmental disclosure obligations, and corporate accountability.

Going forward, environmental litigation may increasingly focus on water rights, groundwater withdrawals, watershed impacts, and the adequacy of environmental review processes. These disputes are particularly likely in regions vulnerable to drought or existing water shortages.

Utility Regulation and Energy Cost Allocation

Another significant legal trend involves challenges to how the costs of AI infrastructure are distributed. The immense electricity demands associated with AI have prompted concerns that residential consumers may ultimately bear the costs of infrastructure upgrades required to support large technology projects. Environmental organizations and consumer advocates have therefore begun challenging utility arrangements and cost-allocation decisions.

In Louisiana, environmental groups have sought regulatory review of arrangements associated with a major data center project.¹⁸ Critics argued that transmission and infrastructure costs should not be shifted to residential ratepayers for the benefit of private technology companies.¹⁹

This concern is no longer limited to regulatory advocacy. Tennessee recently adopted legislation reflecting a different policy approach, requiring companies developing data centers to bear the costs associated with the electrical infrastructure necessary to support their facilities while limiting the ability of utilities to pass those expenses on to existing customers.²⁰ The law reflects a growing policy judgment that the costs of AI infrastructure should be internalized by the companies that benefit from it rather than shifted to ordinary ratepayers.

More broadly, growing energy demands have generated extensive legislative and regulatory activity across numerous states. As policymakers grapple with the consequences of AI-related electricity consumption, disputes regarding cost allocation, grid planning, and utility regulation are likely to become increasingly common.

Industry participants respond that these impacts can be mitigated rather than treated as inevitable. They point to special tariffs and developer-funded interconnection upgrades, demand-response arrangements that can reduce electricity use during periods of grid stress, and investments in storage and new generation as tools for protecting reliability and ratepayers.²¹ Major operators also emphasize commitments to match electricity consumption with renewable or carbon-free energy and to reduce water use or replenish water supplies.²² Proponents further stress construction employment, tax revenue, and related investment.²³ These commitments do not eliminate permitting or compliance questions, but they help



explain why many disputes focus on enforceable conditions and cost allocation rather than categorical prohibitions.

Looking Ahead: The Future of Environmental Litigation and AI

The legal landscape surrounding AI remains in its infancy. Nevertheless, several trends are already apparent.

First, environmental litigation involving AI is increasingly focused on infrastructure. Courts and regulators are being asked to address consequences of the facilities that power AI systems, not merely the outputs those systems generate.

Second, plaintiffs are relying largely on existing legal frameworks. Clean Air Act provisions, environmental review requirements, water-resource regulations, permitting laws, and utility regulations provide established avenues for challenging AI-related developments. This suggests that environmental litigation involving AI will likely continue to expand despite the lack of AI-specific legislation.

Third, recent legislative and executive activity suggests that states may move beyond case-by-case permitting disputes and adopt broader pauses, disclosure requirements, or cost-allocation rules. In June 2026, the New York Legislature passed the Responsible Data Center Development Act.²⁴ Although the measure had not been delivered to or signed by Governor Hochul at the time of this writing, on July 14, 2026, she issued Executive Order No. 62, making New York the first state to impose a statewide pause on state permitting for certain large data centers.²⁵ The order directs the Department of Public Service to conduct a formal public process, including public comment and a public hearing, and to prepare a Generic Environmental Impact Statement addressing energy demand, water use and quality, air quality, noise, and disproportionate impacts on disadvantaged communities. Until that process is complete, the Department of Environmental Conservation must temporarily suspend its consideration of qualifying applications for discretionary state permits involving the construction or expansion of covered data centers.²⁶ The order further directs state agencies to develop a community-investment framework, consider mechanisms requiring data centers to bear grid and interconnection costs, evaluate data-center-specific service classifications, and review whether the State's water withdrawal rules adequately account for large data center demand. The order generally applies to facilities capable of consuming at least 50 megawatts, excludes certain manufacturing, research, educational, and medical facilities, and does not apply to local permits. Although the order is not identical to the bill passed by the Legislature, it advances many of the Legislature's objectives.²⁷

Fourth, environmental concerns are becoming inseparable from broader debates regarding technological development.

Questions regarding energy consumption, water scarcity, climate impacts, and environmental justice are increasingly viewed as central, rather than peripheral, to discussions about AI.²⁸

Finally, the growing volume of AI-related litigation more generally suggests that courts will play a substantial role in shaping the future governance of artificial intelligence. Recent analyses have documented a dramatic increase in AI-related litigation nationwide, indicating that legal disputes are becoming an increasingly important mechanism for defining the responsibilities of developers, operators, and related stakeholders.²⁹ The RAND analysis similarly notes that existing legal doctrines already impose significant obligations on entities whose activities foreseeably create risks of harm, even absent AI-specific legislation.³⁰

Conclusion

AI is often celebrated for its transformative potential. Yet the rapid expansion of AI has revealed a less visible reality: every digital interaction depends upon a physical infrastructure with substantial environmental consequences. Data centers require land, electricity, cooling systems, and enormous quantities of water. As these demands grow, so too does legal scrutiny.

The emerging wave of environmental litigation demonstrates that AI is no longer viewed solely as a technology issue; it is increasingly an environmental issue as well. Challenges involving air emissions, water consumption, climate impacts, permitting decisions, environmental justice concerns, and utility regulation are shaping how courts, regulators, and communities evaluate AI-related development.

The next generation of environmental litigation may therefore be fought not only over factories, pipelines, and power plants, but also over the infrastructure powering the AI revolution. Ultimately, the future of AI regulation may be shaped not only by advances in computing, but also by familiar questions of land use, water allocation, electricity infrastructure, and environmental permitting.



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