

# Data Center Dangers: **Environmental Challenges Reshaping the Industry**



As the artificial intelligence (AI) revolution drives data center expansion, mounting environmental pressures threaten to slow, or even halt, development in key markets. To successfully navigate these risks, developers must consider how environmental factors can manifest into resource and operational constraints, stakeholder concerns, and questions concerning transparency.

In this third installment of our Data Center Dangers series, we examine how environmental impacts affect business performance and the strategies operators can deploy to navigate this increasingly complex landscape.



# AI Adoption: The Driving Factor for Data Center Expansion and Resource Use

While AI presents unprecedented growth opportunities for the sector, it also introduces environmental and operational challenges.

Among the biggest issues facing operators is the sheer amount of electricity required for AI to compute. For example, early research on AI's energy footprint estimated that a ChatGPT request requires [10 times the electricity of a standard web query](#), and electricity consumption for emerging forms of AI may be much higher. Data center electricity demand is projected to reach up to [130 gigawatts by 2030](#) — representing nearly 12% of total U.S. annual consumption. Approximately [56% of data center electricity](#) currently comes from fossil fuels, and expansion in the sector is likely to substantially increase carbon emissions if renewable and energy-efficient solutions are not employed.

In line with rising electricity demand, AI workloads also increase the amount of heat generated by servers and other equipment. This, in turn, increases the volumes of water required for data center cooling systems, as well as concerns about water scarcity. According to one study, by 2030, total data center [water consumption could rise 170%](#) compared to 2023 levels. Other research estimates that medium-sized data centers consume approximately [110 million gallons of water annually](#) and that large data centers consume approximately 1.8 billion gallons of water per year.

In addition to environmental concerns, without careful planning, these heavy resource requirements could lead to a host of operational issues, such as capacity constraints on power and water supply, operational bottlenecks, and [limited site availability](#) in key markets.



# Data Centers Face Growing Community Concerns, Customer Pressure

Despite the promise of increased tax revenue and job creation, communities increasingly resist data center development, citing direct impacts on their daily lives and household budgets.

Energy costs represent the most immediate concern. Data centers' massive electricity demand can increase utility rates for all customers as infrastructure upgrades are spread across ratepayer bases. These facilities can also extend the operational life of fossil fuel plants that might otherwise be retired, perpetuating air quality concerns in surrounding areas. While many hyperscalers have committed to carry the cost of grid upgrades and other infrastructure improvements that would raise prices, in many cases the commitments do not appear to be translating for residential consumers. As a result, significant residential price increases are becoming more common.

Water scarcity represents another flashpoint for communities, particularly in drought-prone regions where water consumption from facilities directly competes with residential, business, and agricultural needs. Noise pollution from 24/7 cooling systems, backup generators, and extended construction phases also creates quality-of-life impacts that erode community support and well-being.

Visual disruption and land use concerns further compound opposition, as large industrial facilities alter local character while generating relatively few permanent jobs compared to their physical footprint.

Data center clients are also intensifying downward pressure on operators through evolving procurement requirements. Enterprise customers are demanding carbon footprint data and comprehensive environmental disclosures from their data center providers. Global scoring agencies rate companies on environmental performance across their entire supply chain, directly impacting vendor selection decisions. For data center operators, these factors underline the importance of resolving transparency and reporting gaps.



# Environmental Impacts Are Hidden, Escalating Sustainability Issues

Limited visibility into environmental performance exacerbates current challenges.

Tech companies operating data centers may report overall emissions and water consumption, but facility-specific metrics, including Power Usage Effectiveness (PUE), Water Usage Effectiveness (WUE), and carbon intensity, are often rolled into aggregate figures. This lack of granularity makes it difficult for data center customers, communities, and investors to evaluate actual environmental performance at the data center level.

The regulatory landscape provides little clarity for stakeholders seeking to understand data centers' environmental impact and performance. There are no emissions or water consumption reporting requirements for data centers at the federal level, and although some states have proposed legislation that would require data-center-specific environmental disclosure, so far these requirements have not been enacted.

Furthermore, recent executive orders have sped up and streamlined federal [environmental reviews for data centers](#), although momentum is gathering [at the federal level](#) to help address concerns over electricity demand from data centers and its impact on other customers' bills. For many data center projects, rules are made at the state and local levels, with some jurisdictions beginning to enact laws specific to data centers and other high-demand facilities to help protect the environment, infrastructure, and residents.

Regardless of the formal regulatory environment, data center owners and operators will likely continue to feel pressure from their customers and the communities where they operate to demonstrably reduce their energy and water consumption.



# A Way Forward: Proactive Sustainability Strategy to Create Business Value

Leading operators are taking proactive sustainability measures to maintain operational viability and competitive positioning.

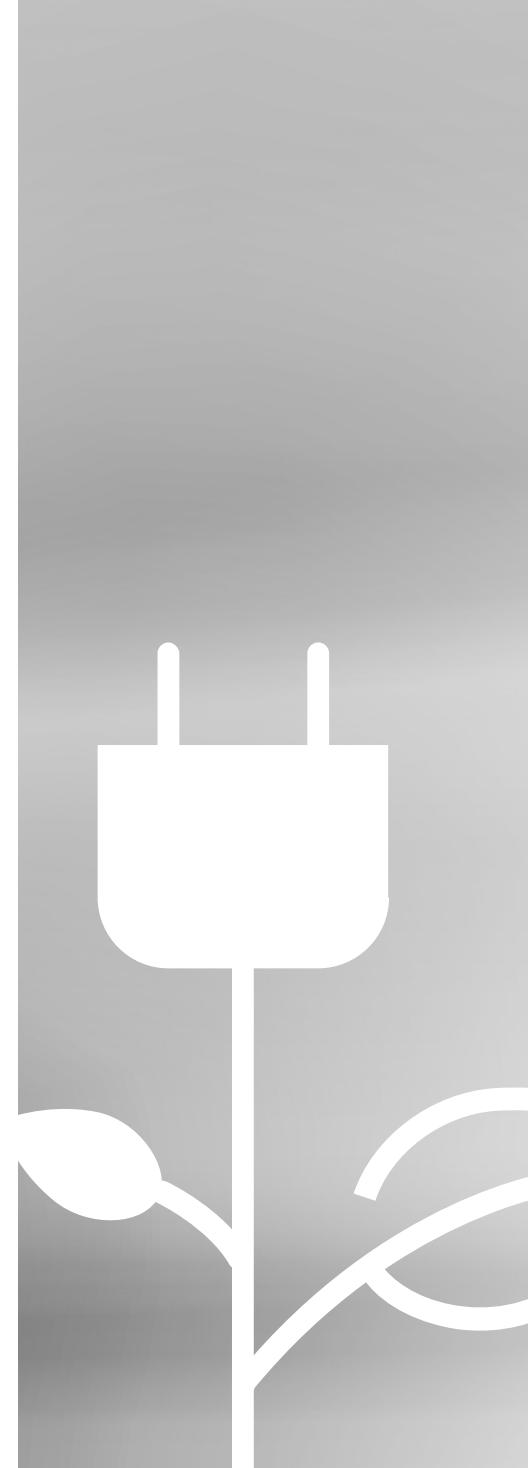
Approximately [\*\*62% of operators are exploring behind-the-meter renewable energy solutions\*\*](#), such as on-site power generation and battery energy storage systems (BESS), which improve operational reliability while demonstrating a commitment to sustainable operations. Advanced liquid cooling systems are also [\*\*reducing energy consumption by up to 30%\*\*](#) in facilities where they have been deployed. These systems are often closed loop, helping to control water consumption. Meanwhile, Power Purchase Agreements lock in predictable pricing for electricity from renewable energy projects, helping create financial and operational stability while supporting clean energy development.

This sampling of technical solutions illustrates some of the ways that sustainable initiatives can bring about business advantages beyond operational efficiency.

Additional advantages may include:

- ▶ Attracting environmentally conscious customers and differentiating operators in a crowded market through a clear commitment to carbon emissions reporting and transparency.
- ▶ Lowered insurance rates through a comprehensive climate risk assessment that demonstrates preparedness for disruptions.
- ▶ Better ability to secure sustainable financing and sustainability-linked loans, which favor operators with transparent sustainability practices.

In addition, some hyperscalers are acquiring clean energy companies and/or developing clean energy projects to meet their energy needs and reduce their carbon footprints. These projects can be eligible for federal tax credits that significantly reduce upfront capital costs. BESS are also commonly eligible for these attractive tax credits. However, timing remains critical. As part of changes under the One Big Beautiful Bill Act, eligibility for energy tax credits under the Inflation Reduction Act requires construction to start within specific windows and to meet certain supply chain requirements. Given the [\*\*complexity of capturing tax credits\*\*](#), many operators work with specialized advisors to help them optimize incentives and maintain regulatory readiness.



# How BDO Can Help

Customer demands and community opposition are likely to increase in coming years.

Operators without strong environmental management plans already face obstacles in permitting and site selection, and these challenges will multiply. As requirements evolve and regulatory frameworks take shape, operators may risk exclusion from major enterprise contracts, reduced access to favorable financing terms, and increasing difficulty expanding in high-growth markets. However, solutions exist.

BDO can help data center operators navigate this evolving space with a sustainability lens. We offer comprehensive support that spans the entire data center lifecycle: from [site selection](#) and tax credit planning to community benefit agreements and emissions tracking and reporting. Our integrated approach helps operators evaluate tax incentives before construction begins, navigate complex regulatory requirements across jurisdictions, and build sustainability strategies that help to unlock green financing, capture key tax credits, assess climate risk, and strengthen market positioning.

Ready to build a sustainability strategy that positions your data center for long-term success? Contact BDO today.

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