Sustainability Paves the Way for Data Center Growth Initiatives

Data centers serve as the backbone of modern technology. These facilities host the data and information we use to power our digital world, from software to storage, communications to entertainment, and are utilized by every industry, whether government, business, or utility. The demand for data center resources continues to grow considerably each year, fueling the need for increased construction of these facilities. As of March 2025, the United States had 5,426 data centers in operation,[1] estimates forecast tripling of data centers by 2030. However, the concern isn't only whether the construction of data centers will be able to meet demand but whether the data centers will be able to keep up with ever-increasing demands for energy. "Data center electricity usage is set to double by 2026," per the annual report from the International Energy Agency (IEA), with the increased use of cutting-edge technologies such as artificial intelligence, cryptocurrencies, and quantum computing.[2]

Our analysis suggests that demand for AI-ready data center capacity will rise at an average rate of 33% a year between 2023 and 2030 in a midrange scenario. This forecast would mean that around 70% of the total demand for data center capacity will be for data centers equipped to host advanced AI workloads by 2030. Gen AI, currently the fastest-growing advanced AI use case, will account for around 40% of the total.[3] In global comparison, most revenue will be generated in the United States (U.S. $137.50 billion in 2025).[4]

Concerns facing the rapid building expansion of data centers are twofold: whether there is the capacity to build and support the infrastructure necessary to power these facilities and meet the exponentially growing demand, and what firms can do to mitigate environmental damages and sustain positive public relations.

WHY SUSTAINABILITY MATTERS

The rapid build-out of data centers is an increasing environmental burden. Building new data centers or remodeling existing buildings to fit data centers' precision control requirements can stress local environments, infrastructure, and populations, and the amount of energy consumption can even affect larger regions, especially when centers are clustered.

- Data centers account for about 4% of global energy consumption.[5]
- Constructing data centers consumes a lot of resources – material and land. The average size is 100,000 sq ft, while the largest U.S. data center is 7.2 million sq ft.[6]
- The U.S. is home to eight of the 20 largest data center markets on earth.[7]
- U.S. based data centers use 1.7 billion liters of water each day.[8]
- Energy use in cloud computing rises by approximately 10% to 30% annually.[9]
- AI data center server infrastructure spend plus operating expenses are projected to reach $76 billion by 2028.[10]
- Artificial Intelligence will shift data center rack power capacities to 50 kW – 100 kW, up from less than 10 kW in 2023, which will likely require a shift from air cooling to liquid cooling.[11]

Companies understand their obligation to be good stewards and are readily adopting sustainable business practices. Fostering sustainable programs and practices focused on external and internal environments are often hallmarks for companies in building customer relations, retaining employees, and improving communities.

Data centers can be and are actively being sustainably built, showing a hallmark of practices that foster good environmental stewardship while serving the growing demand for technology.

BUILDING SUSTAINABLE DATA CENTERS

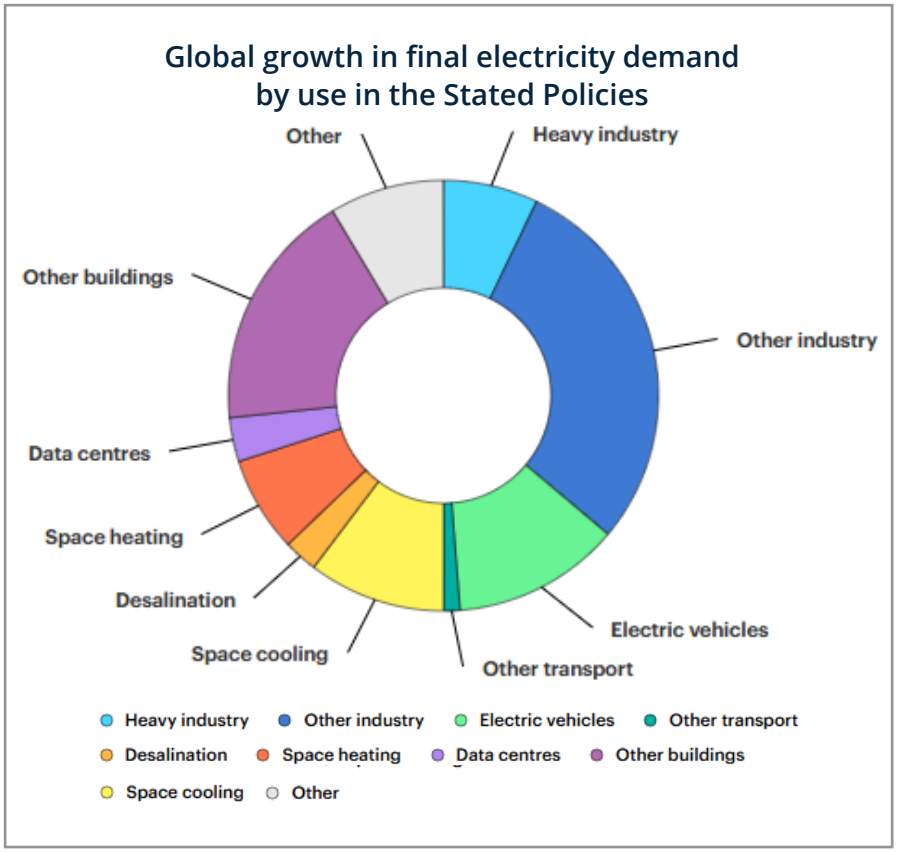
The real estate axiom, location is everything, can also be applied to data center site selection. It is ideal for data centers to be located near critical infrastructure like power facilities, water supply, and transportation and be near population centers.

Building with sustainable considerations and practices can begin with conducting detailed landscape surveys and site analysis with assessments that evaluate potential risks to the local environment and population. These surveys and studies can also consider impacts on the electrical grid, water supply, and air quality. Utilizing site surveys and assessments with a sustainability focus allows preemptive risk mitigation strategies to build in best practices. Data centers operate under specific requirements designed to maximize efficiency. With modern technology and building materials, building or retrofitting these facilities can meet operating requirements and sustainable criteria by using eco-friendly materials that minimize waste while providing efficiencies and meeting safety standards. Even though data centers use large amounts of energy, particularly in running and cooling server racks, and ventilation systems, many are finding these sustainable alternatives are as efficient as traditional materials and still help realize considerable savings.

It is estimated that data centers account for 1 -3% of global greenhouse gas emissions in the United States, whereas, in Europe, it is estimated that data centers could account for over 30% of all power consumption due to new builds to infrastructure. Construction materials are one way to limit carbon emissions, including greening concrete through additives and carbon capture techniques and retrofitting existing buildings, particularly office and high-rise office buildings with existing, robust electrical and insulation infrastructure.[12]

No matter its size, every data center uses substantial energy to run and cool servers. The good news is that data centers are already designed to be as energy efficient as possible; their mechanical and electrical systems are designed to minimize waste and maximize output,[13] as they pull from local power grids and infrastructure investment which are critically needed to support expected data center growth. Companies are leaning into on-site renewable energy sources for opportunities to provide consistent, reliable energy.

Focusing on sustainability principles provides a clear path for data centers to mitigate their environmental impact and drive positive change. Addressing energy consumption, water usage, and waste management are critical steps, as is prioritizing safety, health, and employee well-being.[14]



Source: IEA Global growth in final electricity demand by use in the Stated Policies Scenario, 2023-2030[15]

Sustainability is a broader term and is often defined as the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs.[16]

LEAN ON EXPERTS

Tapping into industry experts from various verticals such as construction-related trades, banking institutions providing competitive rates, risk mitigation practices and protocols such as predictive analytics, and the insurance industry can assist in implementing environmentally friendly practices.

Insurance companies are particularly adept at providing the necessary resources and expertise required for the future of data centers, including risk management and mitigation for all aspects of construction, operations, and management. For example, building sustainability-focused data centers may require specialized insurance policies to cover unique risks associated with green building practices, such as specialized materials or construction techniques. There may be certification concerns with contractors and subcontractors as well as unforeseen costs such as longer lead times for materials that cause construction delays. Claims responses must be adjusted according to the complexities of the project, and expertise in the unique aspects of green building projects is required. Some insurers offer rate credits for LEED-certified buildings, recognizing the potential for lower losses.

Effective data center protection helps with the reduction of insurance costs, mitigation of risk, and compliance with regulations and helps sustain technology.

It is important to identify your risks and benchmark your current state against competitors for a novel and nuanced business development approach. Technology solutions can facilitate understanding how bank loans and available tax credits can give an edge in the competitive world of data centers, in combination with this unique risk management approach to strengthen your insurance portfolio submission, your insurance carrier relationships, and, therefore, your bottom line on rates.

LEED rating points:[17]

Sustainable sites
Minimize environmental impact by creating and implementing erosion and sedimentation control plans. Done by site location, building materials, minimizing footprint, area restoration.

Water efficiency
Reduction in potable water consumption and use of municipal water systems. Done by efficiency fixtures, use of on-site water resources, and wastewater treatment.

Energy & atmosphere
Establish a minimum energy efficency that reduces ozone depletion and encourages using renewable energy sources.

Materials and resources
Reduce building waste and increase the lifecycles of existing buildings. Encourage the use of recycled materials - the goal is to reduce landfill waste.

Indoor environmental quality
Improve the indoor environment through HVAC systems, low VOC paints, and improve exhaust for harmful chemicals, gases, et.

Innovation and Design
Use of innovative or new design elements that exceed current LEED standards and address specific environmental issues based on location.

REFERENCES:

1 Taylor, P. (2025, March 21). *Leading countries by number of data centers 2025.* Statista. https://www.statista.com/statistics/1228433/data-centers-worldwide-by-country/#:~:text=As%20of%20March%202025%2C%20there,located%20in%20the%20United%20Kingdom.

2 Gooding, Matthew. (2024, January 26). *Global data center electricity use to double by 2026* - IEA report. Data Center Dynamics. https://www.datacenterdynamics.com/en/news/global-data-center-electricity-use-to-double-by-2026-report/

3 Srivathsan, B., Sorel, M., and Sachdeva, P. (2024, October 29). *AI power: Expanding data center capacity to meet growing demand.* McKinsey & Co. https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/ai-power-expanding-data-center-capacity-to-meet-growing-demand

4 Statista. (2025). *Data Center – Worldwide.* Statista. https://www.statista.com/outlook/tmo/data-center/worldwide

5 Engie. (2022, July 26). *Replace your electricity consumption with 24/7 carbon-free energy generation, generating revenue and achieving high resiliency for your data center.* Engie. https://www.engie.com/en/campaign/green-data-centers#:~:text=Being%20particularly%20energy%2Dintensive%2C%20the,greenhouse%20gas%20emissions%20(2).

6 Khare, Y. (2025, January 24). *10 Largest Data Centers in the World*. Analytics Vidhya. https://www.analyticsvidhya.com/articles/largest-data-centers/

7 Albers, J, et. al. (2024). *GLOBAL DATA CENTER MARKET COMPARISON*. Cushman & Wakefield. https://www.cushmanwakefield.com/en/insights/global-data-center-market-comparison

8 Mytton, D. (2021, December). *Data centre water consumption.* ResearchGate. https://www.researchgate.net/publication/349381660_Data_centre_water_consumption#:~:text=Whilst%20the%20energy%20consumption%20of,attempts%20to%20reduce%20future%20consumption.&text=Content%20may%20be%20subject%20to%20copyright.&text=examines%20the%20water-,consumption%20of%20data%20centres%2C%20the%20measurement%20of%20that%20consumption%2C%20highlights,attempts%20to%20reduce%20future%20consumption.&text=consumption.,-Crucial%20for%20industry&text=contributing%20to%20that%20demand.&text=this%20total%2C%20but%20data%20centres%20also%20use%20water.&text=water%20consumption.,-DATA%20CENTRE%20WATER&text=water.,-This%20section%20considers&text=consumption.,-Water%20use%20in

9 Digital Reality. (2023). *How AI Can Help Sustainable Data Centres By Revolutionising Energy Efficiency.* Digital Reality. https://www.digitalrealty.co.uk/resources/articles/sustainable-data-centre-ai

10 McGregor, J. (2023, May 12). *Generative AI Breaks The Data Center: Data Center Infrastructure And Operating Costs Projected To Increase To Over $76 Billion By 2028.* Forbes. https://www.forbes.com/sites/tiriasresearch/2023/05/12/generative-ai-breaks-the-data-center-data-center-infrastructure-and-operating-costs-projected-to-increase-to-over-76-billion-by-2028/?sh=232d515a7c15

11 Chervek, E. (2023, August 11). *Why data centers need to invest in infrastructure to meet AI demands.* SDx Central. https://www.sdxcentral.com/articles/interview/why-data-centers-need-to-invest-in-infrastructure-to-meet-ai-demands/2023/08/

12 Gooding. (2024).

13 Eddy, N. (2024, October 24). *Building Sustainable Data Centers: Innovations in Construction and Energy Use*. Data Center Knowledge. https://www.datacenterknowledge.com/green-materials/building-sustainable-data-centers-innovations-in-construction-and-energy-use

14 Dixon, R. (2023, August 1). *ESG Considerations for Data Centers: Leading the Way to a Sustainable Digital Future.* Antea Group. https://us.anteagroup.com/news-events/blog/esg-considerations-for-data-centers#:~:text=In%20conclusion%2C%20the%20convergence%20of,and%20building%20trust%20with%20stakeholders.

15 Spencer, Thomas, and Singh, Siddharth. (2024, October 18). *What the data centre and AI boom could mean for the energy sector.* International Energy Agency. https://www.iea.org/commentaries/what-the-data-centre-and-ai-boom-could-mean-for-the-energy-sector

16 Dixon. (2024).

17 Travelers. (n/a). *An Underwriting Perspective LEED Construction.* Travelers. https://suretybonds-california.com/wp-content/uploads/LEED-Projects.pdf