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Boosting ESG Success by Master Planning Data Center Developments

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Data center companies face increasing pressures to meet Environmental, Social, and Governance (ESG) requirements. Master planning is a critical tool for companies seeking to develop large-scale deployments and reach their ESG goals. Master planning allows companies to create a 10- to 20-year roadmap, providing the ability to scale sustainably while considering access to land, power, fiber, and water. In this article, we will explore how master planning is essential for meeting ESG requirements, using Maryland as a prime example of a favorable market for ESG practices.



Why is master planning important?

Before we get into what companies should consider when master planning a data center development, it's essential to understand why master planning is important. Master planning is crucial for providing a holistic view of a data center's power, cooling, space, efficiency, and reliability over its entire lifespan. Master planning assists in defining environmental and social impact and provides insight into climate mitigation strategies. Master planning also enables streamlined construction to help accelerate time to market for large-scale data center deployments.

When putting ESG at the core of master planning, companies have much to consider regarding the sustainable deployment of the data center ecosystem. We outline the top considerations concerning the primary data center elements: land, power, fiber, and water.

Land considerations

When finding the right place for large-scale data center developments, companies can't just focus on the suitability of a parcel of land for building development; they must also consider state and local policies, the impact on communities, and even the local climate. As a result, companies get closer to reaching their ESG goals when considering possible constraints and opportunities around the site selection process.

First, state and local policies play a critical role in this decision-making process when considering where to build a data center, especially a large-scale data center development. The regulatory environment, tax incentives, and availability of renewable energy sources are key state and local policy considerations that impact the long-term sustainability of a data center development. Unfavorable tax policies can diminish data center viability. State renewable energy goals can signal future availability. Therefore, understanding and navigating state and local policies are vital for making informed decisions about data center site selection and ensuring the viability and success of the facility.

Next, data center site selection goes beyond technical considerations and involves understanding the potential impact on local communities. A data center's social and environmental impacts, such as employment opportunities, local economic benefits, energy consumption, and water usage, can significantly affect the surrounding communities. Therefore, engaging with communities, understanding their concerns, and addressing them proactively during the site selection process is necessary. Building positive relationships with communities through open communication, community involvement, and sustainable practices can help foster a mutually beneficial partnership between the data center company and the community. Considering the community impact and striving for responsible and sustainable operations contribute to the data center's long-term success and social acceptance in the local area.

Lastly, it's essential to consider climate simply because favorable climate conditions can significantly impact a data center's energy efficiency and environmental impact. Data centers require a stable and controlled environment to ensure that the servers and other IT equipment operate efficiently. Mild climates with low humidity and moderate temperatures are ideal for data centers as they require less energy for cooling and humidity control than regions with extreme climates.

Maryland is an excellent example of a state that can make a great home for data center development. The state and local governments have implemented policies such as the [Data Center Maryland Sales and Use Tax Exemption Incentive Program](#), which incentivizes data center investment and job creation by exempting sales and use tax on the purchase of data center property. In addition, a local government in Frederick County, Maryland, has created [The Livable Frederick Master Plan](#), which helps elevate the quality of life in the county by balancing business investments, nature preservation, community health, and more. On top of these forward-thinking policies, Maryland also has a mild climate with access to abundant natural resources, so water scarcity isn't an issue. In addition, Maryland accesses reclaimed water, keeping data center companies from using potable water, further limiting the impact on communities.

Power considerations

Data centers require substantial electricity to power their operations. Purchasing from renewable energy sources reduces their carbon footprint. Carbon usage is why data center companies are seen as [leading the way in renewable energy development](#). Understanding what potential sites have access to renewable infrastructure for power, such as the availability of renewable energy generation facilities and grid connectivity, is necessary to make informed decisions about the site location when reaching climate goals.

Data center companies are trying to balance heightened power demands and sustainability initiatives. A great way to find that balance is locating a site near existing infrastructure, limiting materials and construction needed for data center power. Of course, this is easier said than done. However, access to reliable and abundant renewable energy contributes to meeting sustainability goals while providing long-term cost savings.

In our Maryland example, the state has a favorable market for renewable energy and has set a [nonbinding goal of 8.5 gigawatts of offshore wind capacity by 2031](#), making it an attractive location for data centers seeking to meet ESG requirements. In addition, the state has implemented policies to promote renewable energy, including a Renewable Portfolio Standard (RPS) that requires utilities to generate a certain percentage of their electricity from renewable sources. Furthermore, Maryland passed what is now known as the [Climate Solutions Now Act of 2022](#). The act requires Maryland to reduce statewide greenhouse gas emissions by 60 percent from 2006 levels by 2031. Additionally, Maryland offers incentives, such as tax credits and grants, to promote renewable energy projects, further encouraging the development of renewable power sources. This supportive policy environment makes Maryland attractive for data centers seeking access to renewable power and carbon emission reductions.

Fiber considerations

Fiber optic networks are the backbone of connectivity. Reliable fiber connectivity enables data centers to function as interconnected hubs, supporting digital transformation, cloud computing, and emerging technologies. Companies will have to assess if there is existing fiber infrastructure at the site and the need or potential for future expansion to meet increasing data demands. Master planning allows companies to build a 10-20 year roadmap to understand the needed infrastructure and capacity for future scalability. Understanding future scalability can enable companies to implement a dig-once, run-once approach, simultaneously laying new fiber for use while supplying dark strands for future needs. The dig-once process offers long-term cost efficiencies and minimizes the impact on local communities. Considering the availability and quality of fiber connectivity is vital for master planning a data center development.

Maryland's numerous policies around business development, carbon neutrality, and economic growth make it a prime location for large-scale data center development, including robust fiber optic network deployments.

Water considerations

Water usage is another important consideration in master planning and data center site selection. Some data center cooling solutions require a significant amount of water for cooling and other operations. With growing concerns about water scarcity across the US and around the globe, using recycled water, such as treated wastewater, can help alleviate strains on freshwater resources, minimizing the community and environmental impact of data center operations.

Maryland, known for its abundant water supply, offers favorable conditions for data centers seeking to implement water recycling solutions. The state has access to ample freshwater resources from the Chesapeake Bay and its tributaries and a [well-developed water and wastewater infrastructure](#). This makes Maryland an attractive location for data centers looking to implement sustainable water management practices reducing environmental impact.

Fulfilling ESG requirements

In conclusion, master planning allows data center companies to consider more sustainable land, power, fiber, and water elements; and examines how each aspect can help reach the companies' ESG goals. Maryland exemplifies how a favorable market for ESG practices can highlight the indispensable role of master planning in fulfilling ESG requirements for data center companies.