MID-YEAR PULSE

2026 Data Center Power Report

The New Realities Shaping AI Buildout

June 2026

Executive Summary

Early this year, our **2026 Data Center Power Report** identified power availability as the defining constraint on data center growth. This mid-year update finds that power remains the dominant issue. However, other challenges are increasingly affecting the buildout of large-scale projects, hampering the speed of execution.

Our research among 156 data center decision-makers includes hyperscalers, colocation providers, neoclouds, data center developers, and chip developers, and is supplemented by public announcements and conversations with industry leaders.[1]

The findings point to an industry that remains on track for significant growth, but one in which competitive advantage hinges on securing power, navigating permitting, earning community support, managing emissions, and deploying next-generation architectures. As AI infrastructure scales, leadership will come down to addressing all of these requirements at speed and scale.

1. Surveys were commissioned to enable a double-blind process between Bloom Energy and survey respondents; surveys were conducted in April 2024 (n=30), November 2024 (n=64), April 2025 (n=100), November 2025 (n=152), and April 2026 (n=156), and the latest survey included hyperscalers, colocation providers, neoclouds, data center developers, and chip developers, with 79% of respondents US-based. In this report, the term "data center developers" includes hyperscalers, colocation providers, neoclouds, and data center developers. Interviews were also conducted with industry leaders to pressure test findings and to understand real-world implications.

Key Findings

1. **A prolonged expansion of data center capacity is underway.** US data center electricity demand is projected to more than double by 2030, and data center developers are planning an elevated pace of capacity additions through the end of the decade. The composition of AI workloads is changing faster than expected, with inference already accounting for over half of AI compute today. This shift reflects AI's transition from model building to real-world applications, with inference workloads driving sustained demand for new data center capacity.

2. **Power remains the biggest challenge to bringing new capacity online, but other barriers are gaining importance.** While access to power is still the dominant issue for data center development, construction costs and community scrutiny have emerged as growing barriers. Developers identify higher local electricity prices, increased water consumption, and strain on grid reliability as the community concerns most likely to influence projects. Solutions that reduce local impacts are becoming increasingly critical to project success.

3. **Carbon capture is moving from concept to deployment as developers look to reconcile rapid power growth with emissions reduction goals.** By 2030, nearly one-third of US data center sites using onsite power are expected to incorporate carbon capture, utilization, and storage (CCUS), reaching more than 40% by 2035. This planned adoption reflects growing pressure to expand power capacity while addressing emissions concerns.

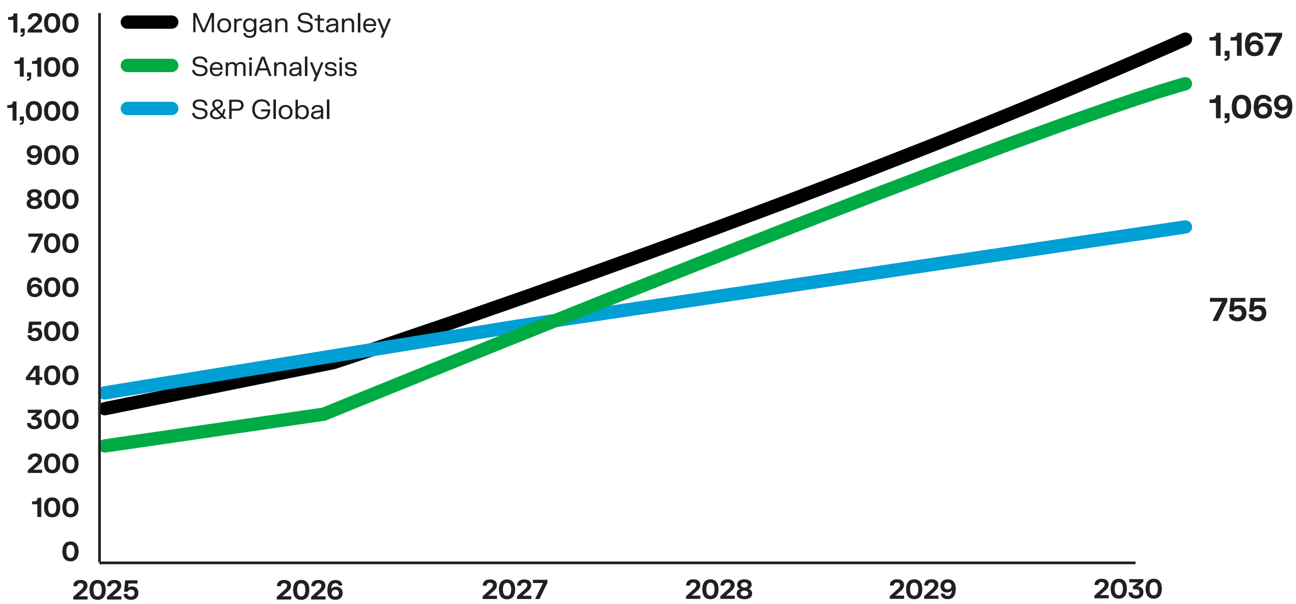
4. **The AC-to-DC transition is advancing faster than expected, creating a growing readiness gap.** As higher rack densities drive new power delivery requirements, chip developers expect hybrid AC-DC architectures to be adopted in 2028, a full year ahead of data center developers' plans. DC-native designs will follow quickly, accounting for 36% of new deployments in less than four years. The architecture that developers choose today will determine whether they can support the next generation of AI chips.

1. A prolonged expansion of data center capacity is underway

The data center industry is in the middle of a multi-year buildout, where industry forecasts estimate 700–1,200 TWh of US data center electricity demand in 2030.

EXHIBIT 1: US data center electricity demand is expected to more than double by 2030

US Data Center Electricity Demand Forecasts, TWh



Source: S&P Global, "Global data center power demand expected to almost double by 2030," North America projection, Nov 2025. SemiAnalysis Data Center Industry Model, April 2026. Morgan Stanley, "Powering AI, the 100GW Opportunity," Feb 2026 and email correspondence with Morgan Stanley.

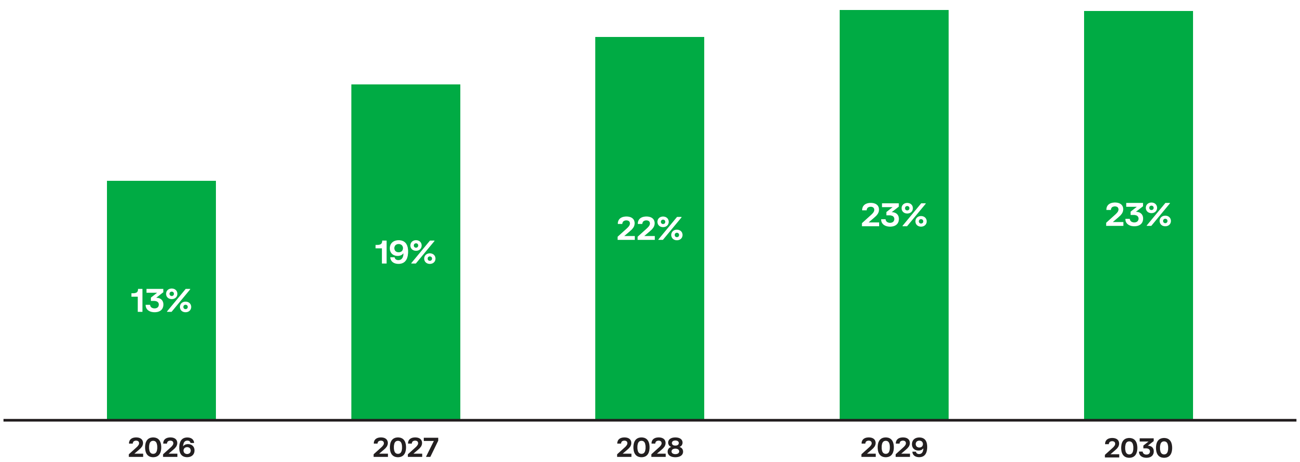
Industry forecasts continue to move higher. Goldman Sachs Research now expects data center power demand to grow 220% by 2030 versus 2023 levels, up from previous forecasts. BloombergNEF raised its 2035 US data center power demand forecast by 36% in seven months, while EPRI's 2026 outlook projects US data centers could consume 9–17% of national electricity by 2030.[2, 3, 4, 5]

2. Goldman Sachs: "AI/Data Center Power Demand: The 6 Ps driving growth and constraints"
3. Goldman Sachs: "How rising hyperscaler reinvestment impacts the 6 Ps driving power growth/constraints"
4. BloombergNEF: "AI and the Power Grid: Where the Rubber Meets the Road"
5. EPRI: "Powering Intelligence 2026"

In parallel, developers are expecting a sustained buildout of new data center capacity. This capacity build is accelerating in 2026 and 2027, driven by projects contracted over the past two years. Survey responses indicate that developers plan to add substantial new capacity through 2030, supporting the view that the industry remains in the early stages of a multi-year capacity expansion.[6]

EXHIBIT 2: Developers plan for an elevated pace of capacity additions through 2030

Share of Planned Capacity Additions Through 2030, % by year



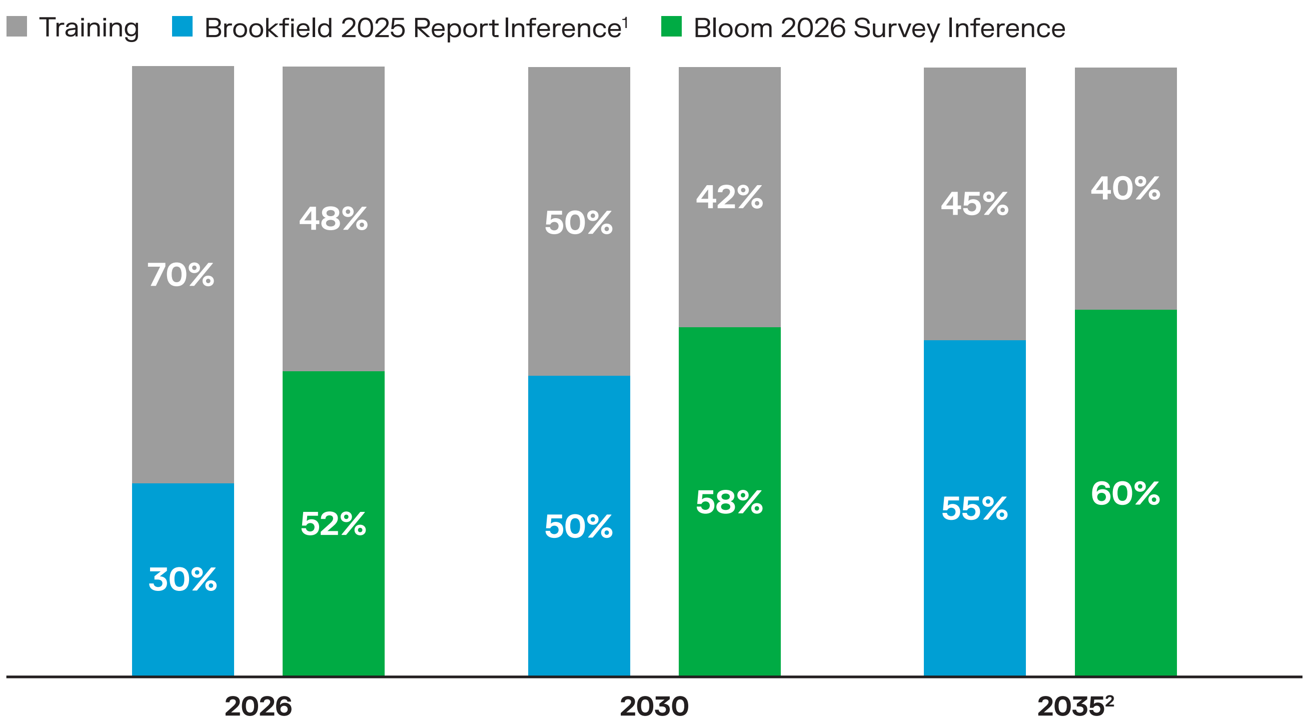
Source: Bloom Power Survey, Q2 2026, n=156. Survey question: "Of the new data center power capacity your organization plans to bring online by 2030, what share do you expect to come online in each year below?"

6. n=156. Survey question, "Of the new data center power capacity your organization plans to bring online by 2030, what share do you expect to come online in each year below?"

The composition of AI demand is changing faster than expected. Just one year ago, forecasts projected inference would account for half of AI workloads around 2030. Our survey indicates that threshold has already been reached, with inference now representing more than 50% of total AI compute.[7, 8] This shift reflects AI's rapid transition from model development to real-world deployment, where inference workloads support a growing number of applications and users. However, training is not being displaced in the process. As total compute demand grows, training demand will grow alongside inference.

EXHIBIT 3: Inference accounts for the majority of AI compute, ahead of expectations

Data Center Training vs Inference Workloads, % of AI compute workload



1. Percentages estimated from figures in source material. Brookfield data is global; Bloom 2026 survey reflects US-based respondents only.
2. Brookfield reported 2034 projection, which is shown here.

Sources: Brookfield: "Building the Backbone of AI", 2025; Bloom Power Survey, Q2 2026, n=156, survey question "In your experience, what share of total data center power demand is driven by training vs. inference in 2026, 2030, and 2035?"

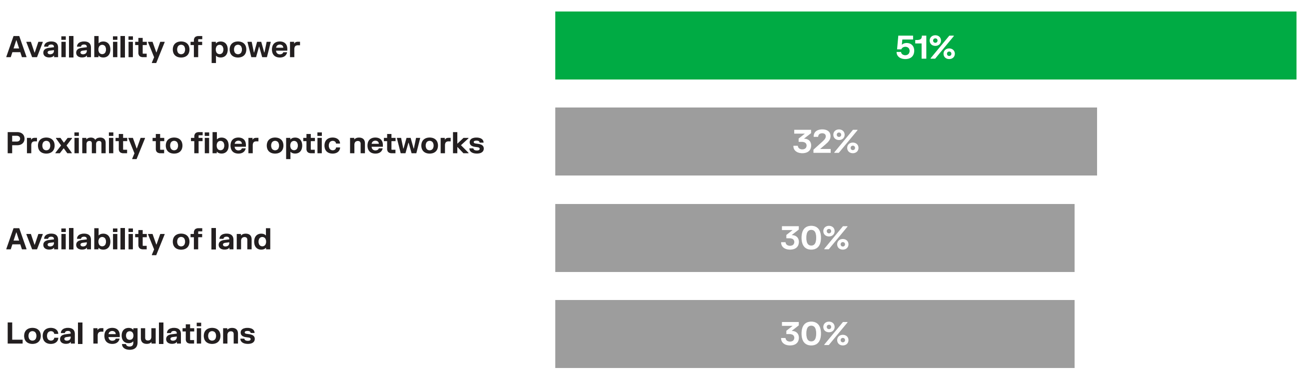
7. Brookfield: "Building the Backbone of AI"
8. n=156. Survey question, "In your experience, what share of total data center power demand is driven by training vs. inference in 2026, 2030, and 2035?"

2. While power remains the biggest challenge, other barriers are gaining importance

Power availability remains the dominant challenge for data center development. More than half of respondents identify it as a top factor for site selection.

EXHIBIT 4: Access to power is the most important consideration for data center development

Key Buying and Decision Factors for Data Center Site Selection,
% of respondents ranking factor in top three[1]



1. Only showing top four responses. Nine other responses ranked lower. Does not add to 100%.

Source: Bloom Power Survey, Q2 2026, n=156. Survey question: "When selecting a site for your data center, please rank the importance of the following key buying/decision factors. Rank from most important (1) to least important (13)."

What has changed is that other constraints are worsening alongside power availability, requiring developers to manage a broader set of requirements to bring new capacity online.

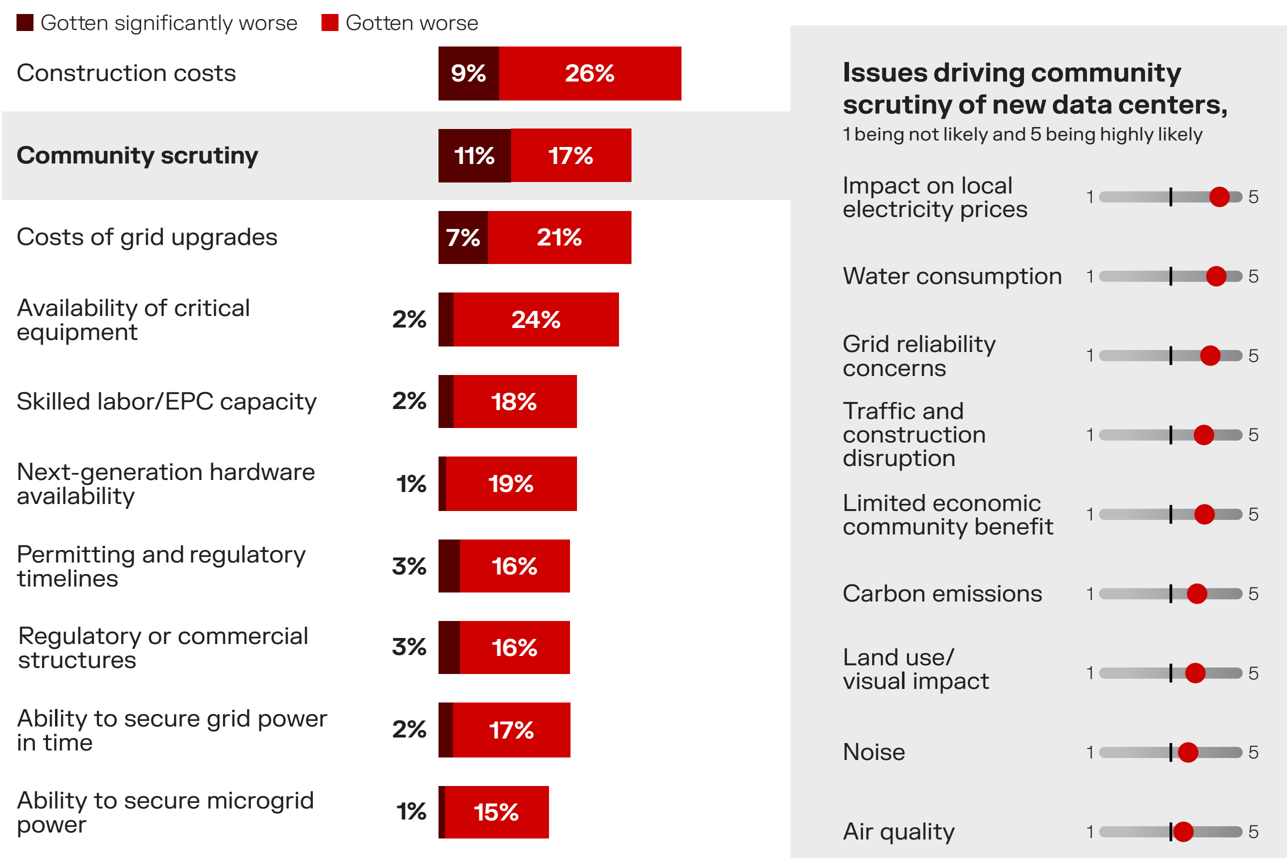
Exhibit 5 indicates that over the past six months, construction costs have emerged as a rapidly growing barrier, **while community scrutiny is playing an increasingly material role in project development.**[9] Other barriers include grid upgrades, availability of critical equipment, skilled labor, and EPC capacity. Together, these findings illustrate how the challenge of data center development is becoming increasingly multidimensional.

9. n=156. Survey question, "For each of the following barriers, indicate how it has changed over the past 6 months."

A closer look at community scrutiny reveals a clear set of concerns. **Developers cite higher local electricity prices, increased water consumption, and strain on grid reliability as the community concerns most likely to influence projects.**[10] All three reflect real impact on local infrastructure and raise the risk of permitting delays and project pushback.

EXHIBIT 5: Community scrutiny is growing, driven by a broad range of concerns

Worsening Barriers to Data Center Development,
% of respondents indicating barrier is worsening [1]



1. Only showing top ten responses. Six additional answer choices ranked lower

Source: Bloom Power Survey, Q2 2026, n=156, Survey question: "For each of the following barriers, indicate how it has changed over the past 6 months.", Bloom Power Survey, Q2 2026, n=156, Survey question: "Rate the following issues in terms of their likelihood of driving community scrutiny when developing a new data center, with 1 being not likely at all and 5 being highly likely."

10. n=156. Survey question, "Rate the following issues in terms of their likelihood of driving community scrutiny when developing a new data center, with 1 being not likely at all and 5 being highly likely."

The same three issues lead in recent national polling on data centers, suggesting developers have a clear read on what communities care about.[11] Notably, every issue tested rated highly, indicating that developers are managing a broad set of objections rather than a single point of opposition.

Community scrutiny is widespread, now shaping project outcomes. More than 70% of Americans oppose AI data centers being built near their homes, and $64 billion of projects have already been blocked or delayed amid local opposition.[12, 13] As of May 2026, at least 18 state bills and 86 local moratoriums have been proposed across the US, demonstrating how community concerns are influencing project outcomes.[14]

Developers report being active in community engagement, with about half holding public forums and investing in local initiatives.[15] However, two of the top three community concerns in recent national polling, grid reliability and water consumption, are addressed by only 33% and 29% of developers respectively (Exhibit 6), suggesting a disconnect between engagement efforts and community priorities.

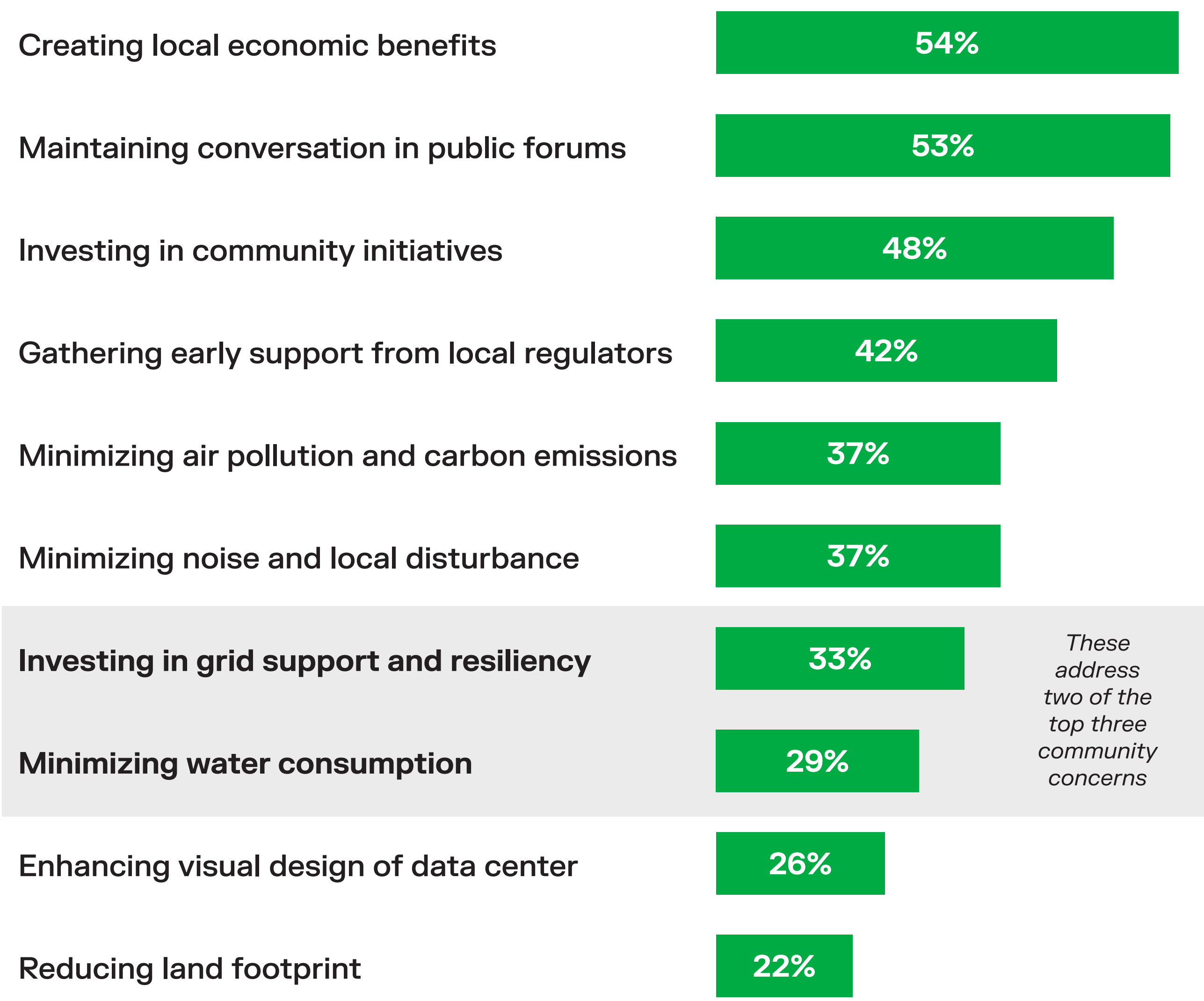
As community pressures grow, solutions that reduce local impacts are becoming increasingly important to project success. **One approach is for large users to bring their own power.** Onsite power can reduce strain on local transmission and distribution infrastructure and serve large loads without relying on the grid. It can also address concerns related to grid reliability and resilience, water consumption, air quality, carbon emissions, and noise, depending on the technology. Fuel cells, for example, combine continuous power generation with low emissions, low water use, and low noise.

Developers are already moving in this direction. **About a third of all US data centers are expected to run entirely on onsite power by 2030.**[16] When grid power is a bottleneck, 61% of developers would deploy onsite power as their primary strategy, while only 12% would relocate to a site with power.[17]

11. Gallup: “Americans Oppose AI Data Centers in Their Area”
12. Gallup: “Americans Oppose AI Data Centers in Their Area”
13. Data Center Watch: “$64 billion of data center projects have been blocked or delayed amid local opposition”
14. Interconnected Capital: “US Data Center Moratorium Tracker”
15. n=156. Survey question: “How is your organization engaging with and supporting local communities when developing new data centers? (Select all that apply)”
16. n=156. Survey question: “What percentage of ALL data center sites in the US do you think will be powered fully by onsite power (i.e., a fully islanded microgrid delivering 100% of data center power)?”
17. n=156. Survey question: “When grid power is a bottleneck for data center deployment, what is your organization’s primary strategy?”

EXHIBIT 6: Grid reliability and water consumption are top community concerns but receive less attention in engagement efforts

Community Engagement Strategies Used by Data Center Developers,
% of respondents



Source: Bloom Power Survey, Q2 2026, n=156. Survey question: "How is your organization engaging with and supporting local communities when developing new data centers? (Select all that apply)"

3. Carbon capture is moving from concept to deployment as developers reconcile power growth and emissions goals

Hyperscalers still publish net-zero targets, but rapid data center growth is making those targets harder to meet.[18] Combined with community concerns about environmental impacts and local infrastructure strain, credible decarbonization is becoming more critical to project viability.

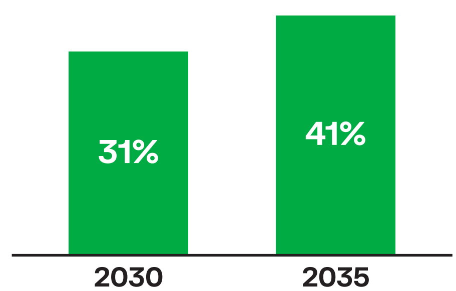
One of the clearest signs of an adapting industry is the growing adoption of carbon capture, utilization, and storage (CCUS). Recent announcements show CCUS moving from concept to project pipeline: Google's Broadwing Energy Center in Decatur, Illinois (400 MW, 2029), Prometheus Hyperscale's Carbon Negative Digital Infrastructure Campus in Casper, Wyoming (1.5 GW, phase 1 2026), and Google's potential data center in SE Nebraska (1-3 GW, 2029).[19, 20, 21]

Developers expect this shift to accelerate as **nearly a third (31%) of US data center sites using onsite power are expected to incorporate some CCUS by 2030, rising to 41% by 2035.**[22] The planned adoption of CCUS reflects growing pressure to expand power capacity while addressing emissions concerns, particularly in regions where environmental considerations are shaping project approvals and timelines.

Renewables, nuclear, efficiency improvements, and CCUS all play a role in how developers plan to address emissions. However, developers are likely to prioritize solutions that can be paired with firm, fast-to-deploy power at the scale required by data centers.

EXHIBIT 7: Nearly a third of onsite-powered data centers are expected to incorporate CCUS by 2030

Data Centers Expected to Incorporate CCUS, % of Data Centers with onsite power



Source: Bloom Power Survey, Q2 2026, n=156, Survey question: "What percentage of ALL data center sites in the US with onsite power generation do you think will have at least some CCUS?"

18. New York Times: "Big Tech's Net-Zero Goals Are Looking Shaky"
19. Google: "Our first carbon capture and storage project"
20. Prometheus Hyperscale: "Prometheus Hyperscale, Spiritus, and Casper Carbon Capture Announce Strategic Partnership to Build Carbon-Negative Data Halls and Energy Infrastructure in Wyoming"
21. Grist: "A look behind the scenes of what could be Google's biggest test of carbon capture"
22. N=156; Survey question: "What percentage of ALL data center sites in the US with onsite power generation do you think will have at least some CCUS?"

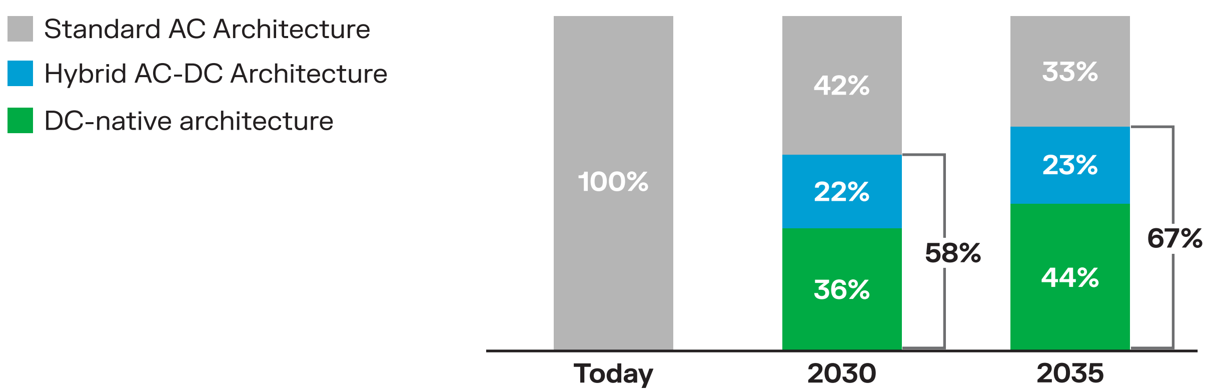
4. The AC-to-DC transition is advancing faster than expected, creating a growing readiness gap

Rack densities have risen from 25–40 kW just a few years ago to roughly 150 kW today, with upcoming platforms expected to reach ~300 kW per rack and next-generation designs approaching 1 MW.[23] At these densities, traditional AC architectures encounter practical limitations in terms of conversion losses, heat, and power delivery requirements. Developers are responding with direct current (DC) designs that eliminate multiple stages of power conversion, reduce losses, and lower total facility power needed to support higher rack densities.

DC-based architectures are expected to account for 58% of new deployments by 2030,[24] making DC, including hybrid AC-DC (hybrid) and DC-native, the leading data center architecture in less than four years.

EXHIBIT 8: DC-based architectures are expected to overtake AC as the leading data center design by 2030

Expected DC Architecture, % of data centers



1. Includes 800V DC facility-level architecture and onsite low-voltage DC architecture

Source: Bloom Power Survey, Q2 2026, n=156. Survey question: "How is your organization's data center deployment split across the following architectures today? By 2030 and 2035, how do you expect the split to change?"

23. Bloomberg: "The Race to Rethink Data Centers for AI's Power Surge"

24. n=156. Survey question: "How is your organization's data center deployment split across the following architectures today? By 2030 and 2035, how do you expect the split to change?"

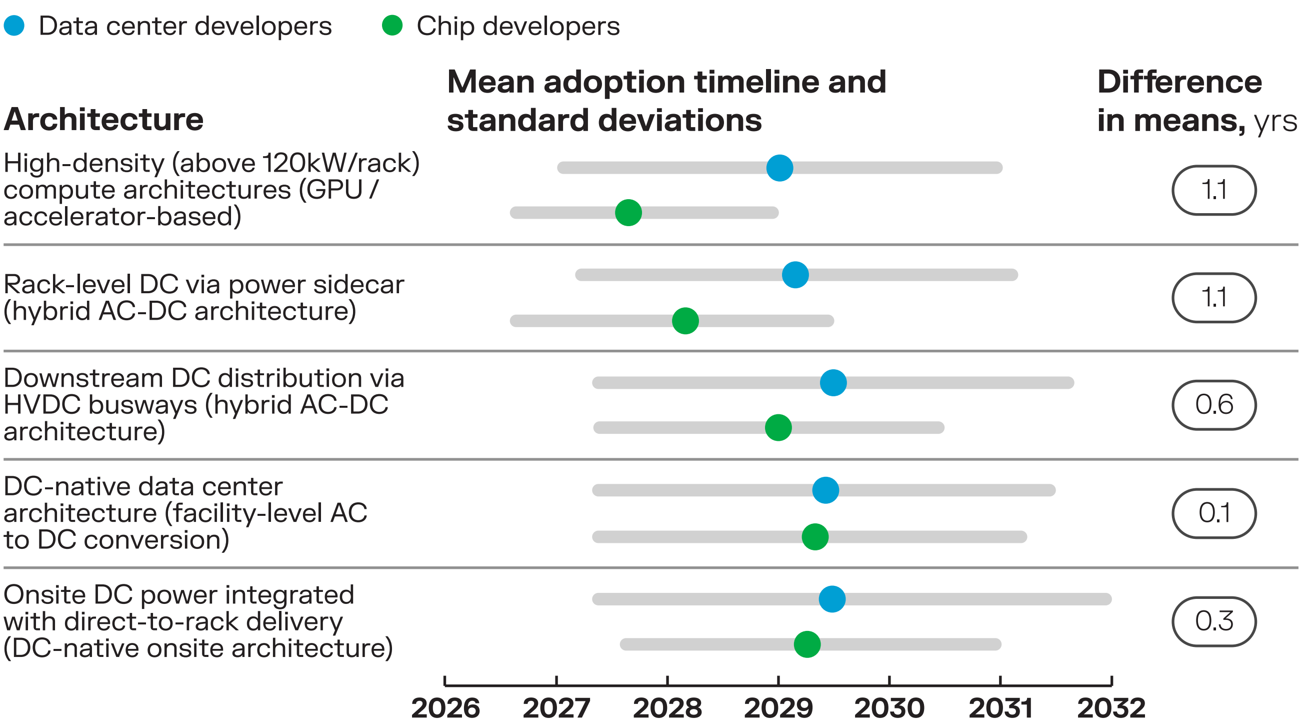
Hybrid architectures are coming faster than data center developers expect. Chip developers anticipate high-density compute and rack-level DC via power sidecars by 2028, a year ahead of data center developers. The difference likely reflects chip developers' proximity to GPU and accelerator roadmaps, giving them direct visibility into where rack densities, power delivery requirements, and thermal limits are heading. This one-year gap highlights the risk that infrastructure planning may lag AI hardware requirements.

The transition does not stop with hybrid architectures. Rack-level DC via power sidecars emerges first, but full DC-native designs, which run the whole facility on DC, scale rapidly behind it. By 2030, DC-native designs account for 36% of new deployments, compared with 22% for hybrid.

Developers must prepare for hybrid architectures sooner than expected, followed quickly by a full shift to DC-native designs. **The architecture they choose today will determine whether their data centers can support the next generation of AI chips.** Developers who get it right will build a lasting competitive advantage.

EXHIBIT 9: Chip developers expect high-density architectures and rack-level DC one year ahead of data center developers

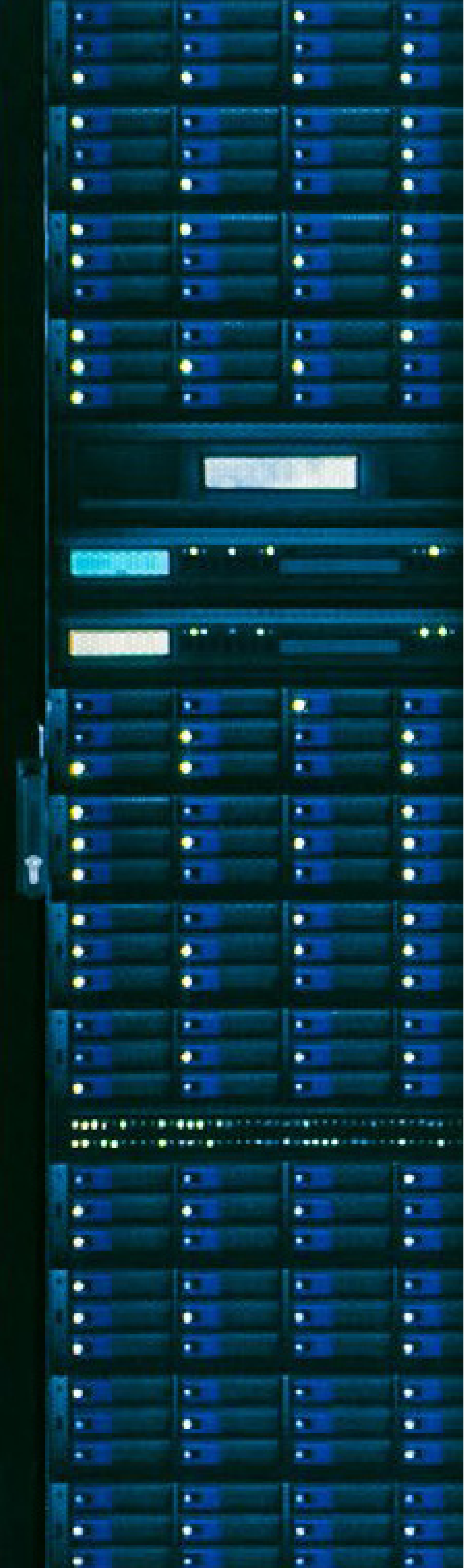
Expected Adoption Timeline for Next-Generation Architectures, arrival years



Source: Bloom Power Survey, Q2 2026, n=90 data center developers, Survey question: "Which next-generation data center technologies and system designs is your organization planning to adopt? By what year is your organization planning to adopt these next-generation data center technologies and system designs?"; n=33 chip developers, Survey question: "In your experience, which next-generation data center technologies and system designs is the industry planning to adopt? By what year is the industry planning to adopt these next-generation data center technologies and system designs?"

Conclusion

Power is still the defining constraint on data center growth, but it is no longer the only one. Construction costs, community scrutiny, emissions, and architecture readiness are all becoming critical determinants of success. The next phase of data center development will not be won by solving for power alone, but by coordinating all of these requirements simultaneously. Those that do will gain a distinct advantage in the AI race.



About Bloom Energy

Bloom Energy empowers enterprises to meet soaring energy demands and responsibly take charge of their power needs. The company's fuel cell systems provide ultra-resilient, highly scalable onsite electricity for Fortune 500 customers around the world, including data centers, semiconductor manufacturing, large utilities, and other commercial and industrial sectors as well as mission-critical organizations in local communities, such as hospitals, college campuses, and retailers. Headquartered in Silicon Valley, Bloom Energy employs more than 2,000 people worldwide and manufactures its systems in the United States. For more information, visit **bloomenergy.com**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