TAG
Technology Association
of Georgia
Infrastructure Society

WHITE PAPER:

Developing and Powering Data Centers to Ensure the Long Term Success of Georgia

Purpose:

Provide a holistic view of the Data Center Marketplace for all stakeholders in Georgia, explain why this is critical to Georgia's goal of staying the best place to do business, and to provide an informed view of how to move forward to maximize positive impact and enable success.

Note: The TAG Infrastructure Society composed this white paper primarily by drawing upon the expertise of its members and the larger Atlanta digital infrastructure community.

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Executive Summary

Data center development in Georgia is experiencing rapid growth, driven by increased demand for data processing and storage. This has prompted unprecedented investment by “hyperscaler” customers such as Meta, Google, Microsoft, Amazon, and more. More recently, developments in AI and machine learning have supercharged demand. Georgia has proven to be one of, if not the, leading markets due to strategic advantages such as a supportive business environment, availability of low cost and reliable energy, and significant communications connectivity. However, the growth trajectory faces significant challenges in terms of power supply, infrastructure constraints, and supply chain and workforce issues. Some common misconceptions about the industry are creating community and policy headwinds. This whitepaper aims to better inform the reader by outlining the current market landscape, community impact, power supply concerns, and infrastructure bottlenecks. The whitepaper concludes by outlining a path forward that will positively impact the community and the industry.

I. Georgia's Data Center Market Landscape

Reason for Demand

Data centers are pivotal in supporting digital infrastructure, including video conferencing, remote work, cloud computing, AI-driven applications, and high-performance computing (HPC).

The story of the recent explosion in demand for data centers began in the early 2010s. High tech companies began outsourcing IT needs, leading companies like Amazon Web Services (AWS) to start constructing a public cloud. The cloud physically exists in data centers. Advances in smart phone technologies created significant new data center demand by hyperscalers to deliver top of line application experiences. Additionally, real time video streaming and conferencing requirements helped data centers spread beyond Super Bowl cities.

"Over the next five years, Flexential plans to significantly expand its capacity in the Atlanta area, including through our new Douglasville 2 facility, which is set to support high-density workloads. This growth is part of a broader strategy to triple the Atlanta data center market's capacity by adding 36MW of power. We are actively developing phased expansions to ensure that Atlanta continues to serve as a critical hub for national and international connectivity."

Ryan Mallory, COO
Flexential

This trajectory turned swiftly upward during the telework boom of COVID. Demand for the infrastructure necessary to support the workload of practically every company in the United States changed the very nature of the market. As if that wasn't enough, the AI boom is adding to an already overwhelming demand.

Georgia was able to capture a significant market share during this pivotal time thanks to cheap, reliable power from excellent (and excellent to work with) electric utilities, relatively cheap land, and communities like Douglas County, South Fulton, and more, willing to put in community investment to compete for this type of development. As a result, major players like Flexential and DataBank aim to add large multiples to existing capacity. This is leading to development in regions outside the congested metro Atlanta area, such as Augusta, Macon, and Savannah, where connectivity, land availability, and affordable operational costs make expansion feasible.

However, the data center market in Georgia faces multiple challenges:

Power Demand vs. Supply: Demand for high-density workloads and large-scale data centers has skyrocketed, putting unprecedented pressure on Georgia's power grid. With data centers now contending with manufacturing and residential developments for power, utilities struggle to maintain adequate generation and transmission capabilities.

According to Ryan Mallory with Flexential, "If power constraints are not adequately addressed, developers may look to other states with more robust energy infrastructure. However, Georgia's strategic location, connectivity to other markets, and competitive tax incentives make it an attractive market. Flexential is confident in Georgia's long-term viability but continues to work proactively with utilities and local governments to prevent power shortages from becoming a deterrent for future projects."

What are utilities doing about the capacity crunch? How are utilities planning for power needs?

"Buying ahead because they know any equipment they have will be used by someone. While it could be called "at-risk procurement", there's really no risk. Time is everything, and the utilities understand this, so they are taking steps to streamline the supply chain."

What is Georgia doing better than its competitors like New Albany, OH, and Ashburn, VA?

"GA Power is a dream to work with compared to all other utilities I interface with. The governor's focus on bringing business to GA is felt through the entire local chain – GAP, local AHJs, and the state. It is a great environment for our business."

Confidential Industry Expert

Power is a critical factor in data center development, with Georgia experiencing both capacity, transmission, and supply chain challenges as the market grows.

Power Generation Capacity: Georgia Power's recent Integrated Resource Plan (IRP) highlights a significant demand increase, with the latest projections estimating a 67% rise over the next two decades. As of 2024, peak demand has surpassed initial forecasts due to both residential and industrial expansion. The expansion of the Vogtle nuclear plant provides a renewable source to the grid, supporting carbon-free power for large facilities. However, developers must address supply chain limitations, especially for essential substation equipment and transformers.

Gary Miller, CEO of Greystone Power provided the following overview:

- Georgia's surplus power supply generation has been absorbed by the increase in electric load driven by the state's booming economy. Georgia Power submits an Integrated Resource Plan (IRP) every 3 years that outlines their long-term resource plan for meeting their expected load forecast. Their last IRP was submitted in 2022 with a 26% demand growth over the next 20 years. One year later, the company released an 'IRP update' scenario that projected a 67% increase in demand over the next 20 years, which is approximately 6 GWs of demand that was vastly underestimated from the 2022 IRP. Currently, GPC's IRP indicates that they will need additional resources to support their expected demand before 2026, so there is very limited remaining surplus capacity available in the state.
- The resources that are needed to support the load growth across the state is largely dependent upon newly constructed natural gas power plants.
- GreyStone Power Corporation, an electric membership cooperative, is adding more solar generation, natural gas-fired power plants, and battery energy storage solutions to keep up with the growing demand in their service territory. GreyStone's peak demand is currently 800 MWs, however with the increase in load growth, the cooperative is expecting to add an incremental 500 MWs to their system over the next 5-10 years

Transmission Limitations: Power transmission infrastructure remains a bottleneck in high-demand areas, especially within Atlanta's metro area. While grid modernization efforts are underway, further improvements in transmission capacity are crucial to meet future demand. Utilities are working to expand transmission lines to connect regions with surplus power to those with deficits, but this process is complex and time-intensive.

Supply Chain Constraints: The shortage of substation and transformer equipment, particularly 230kV and 34.5kV components, limits Georgia's ability to sustain the needed power levels.

Jackie Aquilar, Supply Chain Enterprise Business Manager with SourceBlue, revealed that "The large-scale Data Centers, semiconductor, and EV markets have consumed a sizable amount of the mechanical manufacturing capacity. This year we've experienced air-cooled centrifugal chillers with lead times topping out at 85 weeks. This directly impacts construction schedules as chillers are always on the critical path."

The quantity of data center projects is changing the General Contractor landscape, as GCs with the resume for DC projects become increasingly busy. Moreover, the specialized labor shortage, especially for electricians, adds nuance to the construction process.

Competing Power Needs: Beyond data centers, local industries such as EV and battery manufacturing also require large amounts of power. As a result, utilities must balance the needs of various sectors, adding complexity to power distribution. In this competitive landscape, data center developers may need to consider alternative strategies to secure power supplies.

Gary Miller, CEO of Greystone Power provided the following overview:

While data center interest and construction continues to grow, our existing residential, commercial, and industrial segments are showing growth as well. As utility leaders we must focus on forecasting and planning to meet the needs of every segment to include the expected data center growth. Yes, in many areas of our territory, there are competing forces who require local power, such as:

- **Manufacturing Plants:** Factories and industrial facilities are often significant consumers of power due to their large machinery and equipment.
- **Commercial Developments:** Shopping centers, office buildings, and other commercial establishments need reliable electricity for daily operations.
- **Residential Developments:** New housing developments or expansions in residential areas require power infrastructure to support the increased population.
- **Agricultural Operations:** Farms, especially those with automated systems or heavy irrigation, require consistent power supply.
- **Data Centers:** With the growth of cloud computing and data storage, data centers have become major power consumers due to their high energy needs for servers and cooling systems.
- **Renewable Energy Projects:** Wind farms, solar parks, and other renewable energy projects can also be clients in terms of needing power infrastructure for grid integration.
- **Healthcare Facilities:** Hospitals and clinics require reliable power to ensure uninterrupted operations, especially for critical care and emergency services.
- **Transportation Infrastructure:** Electric vehicle charging stations, rail systems, and airports often need substantial power supply and reliable grid connections.

Community Pushback: The large amount of power needed to meet forecasted demand is, without a doubt, significant and unprecedented. This new development has fueled a developing fire of opposition to data centers in various communities. Other complaints include: (1) data centers do not create jobs, because the computers do all the work; (2) data centers will have an overall negative effect on sustainability goals; (3) data centers will produce a strain on the electric grid that will lead to blackouts and other types of power failure; and (4) data center developers get tax incentives that do not make financial sense.

TAG Infrastructure's position is that each of these objections are based on fundamental misconceptions about data center development and the effect it has, or will have, on our communities.

Misconceptions Versus Results

1

Data centers do not create jobs; computers do all the work:

As discussed in our "Workforce Development" section below, data centers create long term (if not permanent) construction jobs. In fact, many trades that do not require a 4 year college degree have significant demand and significant limitations on supply. Additionally, having data centers closer to our communities enable jobs for high tech companies that rely on data centers.

2

Data centers will hurt sustainability goals:

While data centers will certainly use more power in the short term, the unprecedented demand for power is creating likewise unprecedented demand for investment in sustainable and alternative energy sources, as explained further in the "Emerging Technologies" section below.

3

Data centers will cause the grid to fail:

Electric utilities have significant experience configuring the grid for large power users, which traditionally include manufacturing and mission critical infrastructure. In order to protect the grid, utilities and data centers agree to fund significant improvements (such as building new substations) which ultimately benefit all ratepayers by strengthening the grid.

4

Data center developers get tax incentives that do not make financial sense:

Tax incentives have been around long before the founding of our country. The math necessary to judge whether a tax incentive works is simple: does the taxing authority see an increase in the overall economic well-being attributable to development that is greater than the revenue lost as part of the incentive? Data centers have a unique opportunity to create significant net increases in tax rolls by increasing property values without creating long term strains on public resources (road improvements, housing, new schools) that other developments like manufacturing tend to create.

II. Current Community & Workforce Impact

Public perceptions and policy discussions often overlook the broader impacts of data center developments. The perception is that these projects do not employ many members of the community and that they take resources, while giving back nothing. However, initial construction phases involve substantial employment in architecture, engineering, construction, and specialized trades. These roles, though temporary (typical Data Center projects range from 1-5 years from design to “Power On”), are crucial in boosting local economies. Permanent positions in IT, facility management, and security follow once centers are operational.

Despite perceptions that data centers do not employ many people, experts emphasize that these projects do, in fact, create diverse and skilled job opportunities. The need for skilled tradespeople, combined with an aging workforce, is driving a new mindset regarding jobsite standards, recruitment, and training.

QTS Data Centers commented that “the building of a single data center can create hundreds of long-term construction jobs at each location, and the building of a campus or multiple data centers can create thousands of long-term construction jobs. There is also increased demand for furnishing and equipping, security, ongoing maintenance, and logistical support roles. According to a 2023 PwC Report commissioned by the Data Center Coalition, for every job directly created by a data center, six to seven other jobs are supported in related industries.”

Christy Swearingen of Swearingen Partners explained that data centers enhance community infrastructure significantly without disrupting local operations, including power and internet services. They contribute positively to city and county tax revenues, offering numerous opportunities for community engagement, program expansion, and budget balancing.”

A critical challenge linked to data center growth is the shortage of skilled tradespeople needed for these projects. As the data center market drives demand, so do competing market segments. Additionally, buildings are more complicated than they used to be.

“Other market segments are competing for electricians. Buildings are more complicated than they used to be. We don’t have the skilled workforce necessary to support this, and to support where the power industry is heading,” commented Gael Pirlot, Vice President with Inglett and Stubbs.

This, combined with the growth in the region, results in the need for jobsite attraction. Gail Pirlot also noted that “To attract electricians to certain projects, we see the most impact from jobsite culture. If the jobsite has paved parking, well lit parking lots, restroom trailers, and a focus on sharing metrics and communication with the workers, people want to work there.” “The ability to prefabricate also makes projects attractive.”

The Data Center market segment has raised the bar in the industry. Hunter Sheehan, Business Development Manager with Turner Construction Company revealed that “Several of our repeat data center clients have pushed Turner to go above and beyond previous levels of active caring for our

workforce. We have stepped up and spread these expectations to all of our projects. This has become "the new standard. This means air-conditioned worker amenity areas, running hot water, and best-in-class safety measures".

To build a new workforce, electrical subcontractors are taking matters into their own hands through enhanced recruiting and high school outreach. This labor demand is meeting a tired and aging workforce, creating a "perfect storm." Many seasoned workers are retiring or scaling back their participation in the workforce due to physical exhaustion from years of manual labor. This trend has created a gap in the number of experienced electricians available to meet growing industry demands

"Five years ago, we didn't have a budget for recruiting. Now, we do. We are paying recruiters' salaries, and for our staff to spend time with potential recruits," said Robert Siegworth, COO with Cleveland Electric. There is also an effort to reach young adults out of high school. Several have suggested the need for proactive measures by local and state governments. One suggestion involves the development of vocational education programs to identify high school students with an aptitude for trades and train them for careers in data center construction and maintenance. "Are these governments seizing this opportunity by investing in vocational education for the thousands of jobs being created?" an industry voice asked. Proposed initiatives include partnerships with companies to incentivize internships and apprenticeships, thereby fostering a skilled workforce. Gael Perlot from Inglett and Stubbs noted "There is a culture shift happening – young adults coming out of high school are interested in becoming electricians. We are partnering with high schools and talking to parents to change minds."

Robert Siegworth of Cleveland Electric summarized the current state of affairs aptly: "We can accept no qualifications, and we will teach them when they get here."

The electrical trade workforce, particularly within the data center sector, is at a critical juncture. Technology, recruitment, jobsite culture, and workforce sustainability all play significant roles in shaping the industry's future. Addressing these areas with a focus on safety, efficiency, and workforce development will be essential for meeting the growing demand for skilled electrical workers as data centers continue to expand.

III. Opportunities for Innovation & Development

Despite the many challenges facing the data center market, Georgia presents a variety of opportunities for data center developers to innovate and collaborate with utilities and state and local government.

On-Premises and Renewable Generation: Many developers are exploring on-premises power generation, including natural gas and nuclear as viable, large-scale sources, to support data center operations. While renewable sources like solar and wind are limited due to their intermittent nature, on-site battery storage can offset peak demands and offer a backup solution during power outages. Data centers could also experiment with emerging technologies, such as small modular reactors (SMRs) for nuclear energy, to create stable, on-site power sources.

Leland Sparks with LNS Solutions, LLC provided the following information:

Until we solve the problem of how we get high levels of power to new data centers, other problems are minimal. The current answer to this question as far as that is concerned is microgrids. Microgrids themselves have few issues other than what to use for fuel, and each has a weakness.

- Natural gas relies on under and aboveground piping. Some major trunk delivery facilities are insufficient to power modern data centers. Additionally, this infrastructure is aging, and policymakers sometimes slow development for environmental reasons.
- Nuclear power is being looked at very seriously, including small modular reactors. Permitting and community resistance, at this time, draw the viability of this solution into serious doubt.
- Solar technology presents intriguing challenges when it comes to high-capacity delivery. Getting 10 MW of power or more can cause major light reflection and heat issues that can make site selection difficult. Such fields may need to be 50 miles away from big cities, making this technology questionable for many data center uses. There is a farm in Pendleton, Oregon that can cause problems on the highway due to sun glare.
- Nitrogen works well but only in regions where it is possible to get reliable access.
- Solutions are highly regional in nature. For example, hydrogeneration is one of the most reliable and least problematic fuel sources, but is highly location specific and not viable in Georgia.
- The best solution might be spreading risk by relying on various fuel sources. Right now, one of the biggest roadblocks is achieving common design across industries, and designs that can accommodate different fuel sources at any given time.

Energy Efficiency and Cooling Innovations: Innovations in cooling technology, including liquid cooling and direct-to-chip cooling, offer substantial reductions in power consumption, which is especially beneficial for high-density data centers. Such technologies not only optimize power usage but also help align with environmental sustainability goals.

"Quanta Services has been a leading player in US infrastructure for many years. With our expansion into data centers and data center technologies, we have identified several promising emerging cooling technologies using liquid cooling. These include pumped two-phase cooling systems, direct to chip water cooling systems, rear door water cooling systems, and single-phase immersion systems. Each of these emerging technologies has its own advantages and disadvantages, but we believe that one technology stands out from the rest. After extensive research and development, Quanta's Advanced Technology Group has created a two-phase immersion tank system, which is based on three years of testing carried out in our Dalton, GA Tech Center. Our findings show that this system delivers the best performance without compromising the efficiency of cooling high density chips and servers. "

Todd Richard, Senior Vice President
Quanta Services

"Liquid piping and immersion have the most market share at this time, but keep your eye on the development of direct to chip cooling (a liquid cooling method that uses a cold plate to transfer heat away from a chip to a heat exchanger). I believe direct to chip will become preferred over liquid immersion. Liquid immersion came out first and people fell in love with it, but are just now starting to wake up to the drawbacks, including weight and space taken up and the inability to use fiber in some instances. One survey I reviewed indicated 62% of participants indicated they would move to direct to chip."

Leland Sparks, CEO
LNS Solutions, LLC

Unique Opportunity for Investment into Sustainability: Like many other technological advancements making way in the US (electric mobility, bringing manufacturing back into the country, and more), data centers use a large amount of power. The need for data centers to be "mission critical" (i.e., always on) makes many traditional renewables like solar and wind unworkable. However, the power capacity crunch described above has a potentially world-changing silver lining: developers can't even get enough traditional power, and one of the few ways around that problem is investment in carbon-free and other alternative sources of energy. Additionally, many of the largest investors in the space have corporate sustainability goals that are driving innovation in development to require more sustainable solutions. Should data center development continue at the current pace, we may uncover new solutions to address the lack of power years earlier than we would have otherwise made such discoveries.

"Nuclear power is already playing a critical role with the new Vogtle units, and renewable energy sources such as solar and wind are becoming more prominent. Flexential is exploring renewable energy options to complement traditional power sources, and while hydrogen is still in the experimental stage, it represents a potential future alternative. Our focus is on leveraging a diverse mix of energy sources to ensure reliability and sustainability," said Ryan Mallory with Flexential.

According to QTS Data Centers, data centers are anchoring the renewable transition and helping bring online many new large-scale renewable projects around the country. For example, as of March 2023, the top five hyperscalers — Amazon, Google, Meta, Microsoft and Apple Inc. — have a combined renewable portfolio totaling over 45 GW around the globe. Roughly 57% of the global corporate wind and solar capacity tracked by S&P Global Commodity Insights is tied to just these five companies.

Todd Richard with Quanta Services stated that “we generally maintain a positive outlook on sustainability, both in the sense that we should help our clients design and build data centers that are more sustainable and that it is possible to offer significant operational cost advantages. One of the benefits of Quanta’s two-phase cooling systems is that overall power consumption is reduced significantly which has been shown to reduce the carbon footprint by 60%. 2PIC is the current thermodynamic limit of cooling High Performance Compute loads. Without substantial investments in batteries, data centers may not be net-zero anytime soon and batteries have their own environmental issues. Members of the Quanta team were involved in some of the world’s first lithium battery UPS solutions and there is no doubt we will be installing advanced battery systems when they are commercially available. With this technology available it may be viable to help our clients realize carbon neutrality in the future.”

IV. Tax & Legal Policies in Georgia

As of this writing, the most material legal and tax issue in Georgia for data center development is the state sales use tax exemption for qualifying data centers. Georgia's sales use tax exemption solves an unintended tax burden on data centers that arises because of what makes a good data center good: constant equipment updates. Last year, House Bill 1192 sought to repeal that tax exemption as a means of slowing data center growth, largely due to power concerns.

Governor Brian Kemp repealed this bill on May 7th, stating that it would "undermin[e] the investments made by high-technology data center operators, customers, and other stakeholders in reliance on the recent extension, and inhibiting important infrastructure and job development[.]" However, the industry expects more bills to inhibit data center growth next year.

We observe that some parts of the public have common misconceptions about tax exemptions and other incentives for data centers.

"Here in Georgia, we saw House Bill 1192 suspend a sales and use tax exemption for certain high-technology data center equipment. Some sponsors of this bill reported publicly that the purpose of this bill was to slow down the amount of power data centers use. In my view, the tool that policymakers chose was a poor fit for the job. First, our electric providers are in one of the more heavily regulated businesses in the state. Despite this, our utilities are top of the line compared with other providers in this country. For this reason, power concerns are probably more effectively addressed through that process. Second, eliminating the sales and use tax exemption would probably have been insufficient to completely slow power requirements for data center development in the state. Rather, it would have contributed to an uneven field of competition for competitors, where various other factors are starting to separate the haves from the have-nots. This sales and use tax exemption was designed to eliminate an unintended inefficiency in our tax code: we don't think the drafters of the tax were thinking about how much extra tax burden comes from keeping a data center top-of-the-line, which requires constant equipment replacement. The sales and use tax exemption is there to even the playing field and make Georgia competitive for the highest end of digital infrastructure."

Alan Poole, General Counsel
DC BLOX

Misconceptions

1 Data center developers do not need tax incentives to build.

The reality is that data centers are terrifically expensive to build, and state and local jurisdictions want data center development to happen because of the positive effects that infrastructure has on the local economy. To compete for data center development, governments offer tax incentives. When asked, "What legislative changes could have the greatest impact, in the positive or negative?" Bill Thomson with DC BLOX answered "that continuing to offer tax abatements to data center companies and facilitating the expansion of energy sources. Encouraging investments in digital and power infrastructure is critical to enabling future economic growth in a community, state or region. Data centers and the accompanying expansion of local fiber networks enable many other industries such as manufacturing, healthcare,

universities / research, financial services, and others. And with the growth of AI technology, data centers and energy availability will be even more critical. New fiber networks are required to enable connectivity for the exponentially growing amount of data produced and consumed. The large digital infrastructure drivers, the hyperscalers, do not have to be located in a specific state. If incentives are not offered, or power is not available, companies will invest in nearby regions that can support them, causing a potential disparity in economic growth."

2 Tax incentives for data centers puts the state/local government in a worse position.

Data center development has been proven to increase property tax rolls in the long run. Even better, compared to other high tech uses like manufacturing, data centers put less stress on social services like road maintenance, long term housing, the need for additional schools, etc. According to Christy Swearingen, "The public should be wary of any narrative that suggests that data centers do not pay taxes just because of a sales and use tax exemption. Data centers generate significant property tax revenue, and the Georgia tax exemption allows developers to invest in these facilities to make them high tech, top of the line, which adds more to the tax rolls." Bill Thomson with DC BLOX also noted "Policymakers need to take a look at how much of the costs of expanded energy infrastructure will data centers (and their customers) pay for which has a state-wide benefit to local residents and businesses in terms of power capacity and reliability. For example, Georgia Power has already committed to keeping current power ratepayers stable since expansion costs will be borne by the data center companies (and their future customers) while energy capacity and reliability are expanded. Also, policymakers should analyze the future economic benefits to having new digital and power infrastructure in the state. Data centers, fiber infrastructure and expanded power availability are required to support many growing industries that are being recruited to or already have a strong presence in the state including healthcare organizations, universities/research, manufacturing, financial services, and more."

Currently, Georgia lawmaker and House Speaker Jon Burns announced the creation of a special committee to study increased industrial energy demand in Georgia. According to Speaker Burns, this committee will study all available facts on the causes and effects of increased energy usage, with a focus on ensuring that Georgia ratepayers do not shoulder any unfair burdens. Additionally, we expect that the efficacy of the state tax breaks will be examined further. This area of study requires careful examination of all relevant factors and should include both present and expected future value. In one prior example, a 2022 state audit found that (at the time of the audit) the State accrued only $0.24 per dollar spent in tax revenue. Opponents used this data point to allege these tax breaks do not benefit the State. However, that same study showed that 90% of high tech deployments would not have happened but for the tax incentive. Additionally, the Data Center Coalition conducted a broader study around this same time and found, among other things, that (1) data centers contributed approximately $5.3 billion in total economic output during the study period and (2) for each dollar of forgone tax revenue due to the exemption, the state accrued approximately $10.50 in value-added impact. The new energy committee should strongly consider the total economic benefits that data center development brings to Georgia, and avoid a myopic approach that keeps Georgia in the technological dark ages for years to come.

What is likely to matter in the future that policymakers might not be thinking about today? One of the hottest topics in the energy space is the introduction of nuclear power into the data center development pipeline. Fascinating examples in current development include hyperscaler Amazon buying power directly

from the Susquehanna Steam Electric Station outside of Berick, Pennsylvania, and Microsoft preparing to reopen the operational portion of the Three Mile Island nuclear plant. But an old nuclear technology used today only in nuclear submarines looks more and more likely to show up in data center developments: small modular reactors (SMRs).

SMRs are being studied and developed for onsite generation and could be the next big leap in the industry's goal to reduce its carbon footprint. SMRs have significant advantages over other carbon free energy sources because of their ability to deliver sustained loads not subject to external factors. Additionally, some SMR designs may be able to recycle nuclear fuel that is spent for the purposes of larger nuclear reactors, which has the potential to improve the viability of the nuclear industry as a whole. However, significant roadblocks stand in the way of progress for SMRs. At this time, the largest roadblock is cost. As technological development breaks this barrier over the coming years, federal and local regulation will be the next issue.

"At the federal level, I expect nuclear permitting to receive the most attention in the near future. As of March 2024, industry experts estimate that any nuclear development, no matter the size, takes 7 to 10 years to permit. Policymakers should look at whether shorter timeframes for SMRs would appropriately balance public safety and national progress. But even if the federal government expedites permitting, it is unclear to me how developers will overcome local community concerns of a new nuclear facility. In the wireless connectivity market we saw significant legislation over the past 30 years prioritize development over unreasonable community concern through federal restrictions on local government power to reject new facilities. This works despite fringe concerns about the health and safety effects of wireless radio waves. While there may be an analogy to be made for nuclear development, I find it unlikely policymakers will want to be as forceful in curtailing local governance with respect to nuclear facilities."

Alan Poole, General Counsel
DC BLOX

However, some developers are starting in strategic locations: areas already near nuclear facilities. It remains to be seen how much comfort the public will gain with nuclear facilities in the future, but the message about nuclear development the industry is sending is this: "we are not going to wait for progress."

V. Policy Recommendations & Strategic Actions

To maintain its position as a competitive data center market, Georgia must consider strategic actions and policy adjustments:

1

Allow Current Tax Incentives to Continue

Georgia's sales usage tax exemption was put in place to solve a tax issue unique to high tech companies, not to give away free money. As Governor Kemp alluded in his remarks vetoing the recent repeal bill, this exemption was put into place in order to incentivize development, and it's working. Legislators and policymakers owe it to the public to carefully study the benefits of development (increased tax rolls without a commensurate increase in social services, construction jobs, ancillary high tech jobs thanks to compute capacity) before making more restrictive tax laws.

2

Labor and Training Programs

Georgia's labor market faces shortages in skilled trades, particularly electricians, which is critical for the construction and maintenance of data centers. Implementing state-funded training programs could bolster the workforce and reduce delays in data center construction. Additionally, such an effort is likely to increase the opportunities for workers that do not find a traditional 4 year college to be the best path.

3

Substation and Transmission Equipment Investment

Addressing the supply chain issues around substation equipment should be a priority. Incentivizing manufacturers to localize the production of essential components like transformers and breakers may reduce supply chain risks and accelerate development timelines.

4

Expanding Renewable Energy Integration

Although traditional generation sources are essential, expanding renewable options through incentives and partnerships could diversify Georgia's energy portfolio. Incentivizing renewable and hybrid energy solutions—like battery storage paired with renewable power—could provide a more resilient energy mix.

5

Regional Data Center Development

Incentivizing data center development in secondary markets within Georgia, like Augusta and Savannah, can help mitigate strain on Atlanta's power grid. These areas offer abundant land, a favorable regulatory environment, and lower operational costs, making them ideal for future data center expansion. To that end, developers, local jurisdictions and their representative organizations (such as the Georgia Municipal Association and the Association of County Commissioners of Georgia) should work to create a development playbook, using what has worked well in the past, to avoid having to reinvent the wheel every time a new jurisdiction decides it wants to incentivize development. And, to attract the best high tech jobs that rely on data centers more and more, TAG Infrastructure expects more and more localities will want to incentivize development.

Conclusion

Georgia's data center market presents both promising opportunities and significant challenges. The power demand surge, driven by high-performance computing, AI, and big data applications, places immense pressure on Georgia's power grid. Supply chain delays, limited substation equipment, and workforce shortages pose additional obstacles for developers. However, proactive strategies, including those laid out in this white paper, can help mitigate these challenges.

Most importantly, finding a way to enable this trend of data center development in Georgia may prove vital to keep pace with major technological developments in the near future. Data centers are necessary to support many of the high tech jobs Georgia wants to attract and maintain. The massive development to occur in the next 4-6 years creates an opportunity for many Georgians to find new sources of work in the trade, which could become an important stepping stone (or career) for individuals that prefer not to take on the investment of four-year college degrees. And, if Georgia decides to let this next wave of development pass due to its many challenges, it is nearly certain that another state will attract major investments that Georgia could have secured, and likely solved many of the problems we could have solved as a result.

With targeted policies that foster infrastructure investment, workforce development, and renewable energy integration, Georgia can strengthen its position as a premier data center market. The next few years will be pivotal, as utilities and developers alike navigate these constraints and harness the opportunities to create a resilient, efficient, and sustainable data center ecosystem.

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