Data Center Trends in Metro Atlanta and Considerations for Local Communities

Metropolitan North Georgia Water Planning District

The Big Picture

Developers: *Engage with water providers early.*

Water Providers: *Consider benefits of closed-loop cooling, update drought plans + communicate clearly.*

Local Leaders: *Support policies for balanced, resilient growth.*

Data Centers

Data centers are secure facilities that often house large volumes of computer servers.

These servers store, process, and transmit data to power artificial intelligence, cloud computing, e-commerce, and everyday digital services.

The rise in AI data centers brings both opportunity and responsibility. Decisions made today will have an impact on our communities for possibly decades to come.

Data Center Growth in the Region

Data Centers Growth in Metro Atlanta

Data centers are not a new concept, they have been around for decades

A development proposal does not guarantee the project will move into the development or operational phase

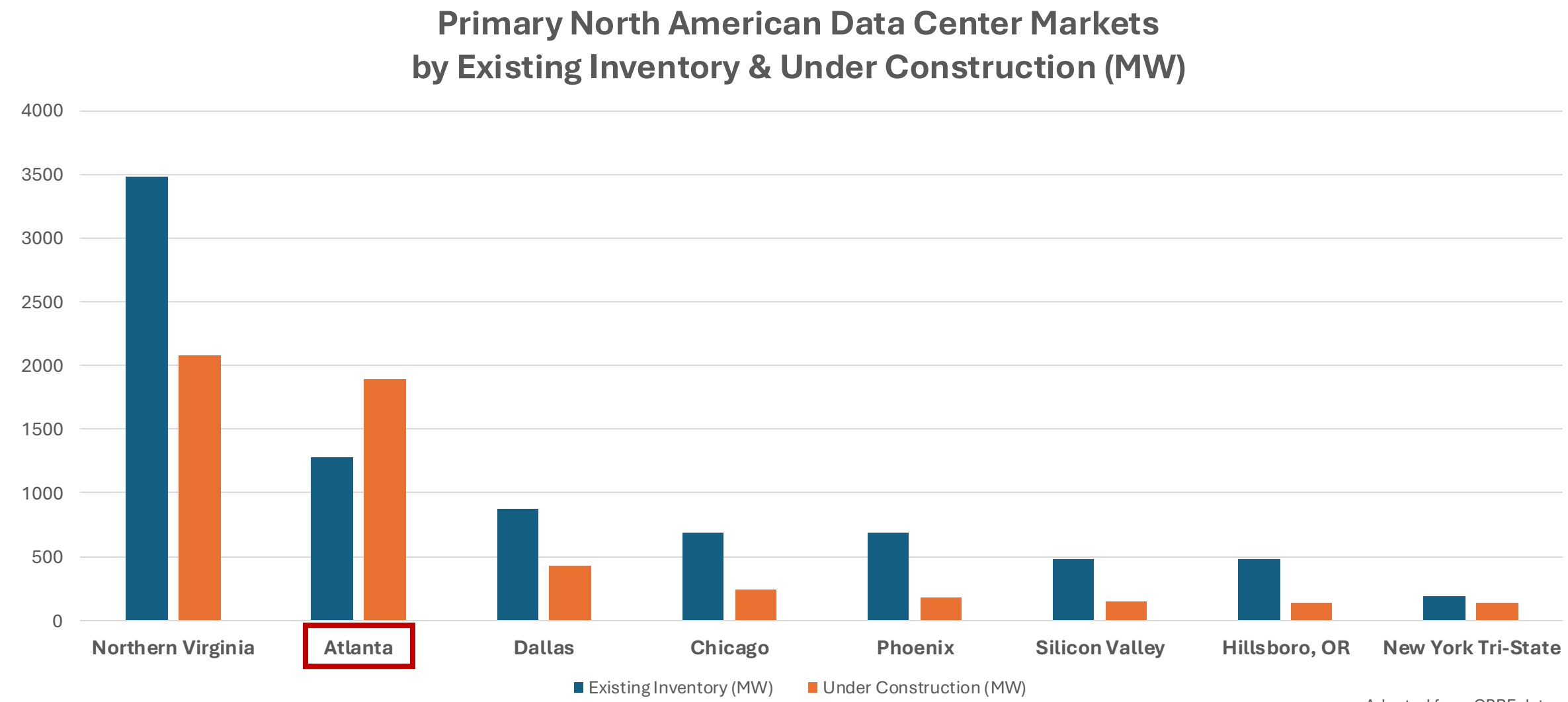
How many projects will become operational depends on local approvals, power commitments, market trends, etc.

Prominent Types of Data Centers in Metro Atlanta

Colocation: space is rented to multiple companies to install their own servers and equipment

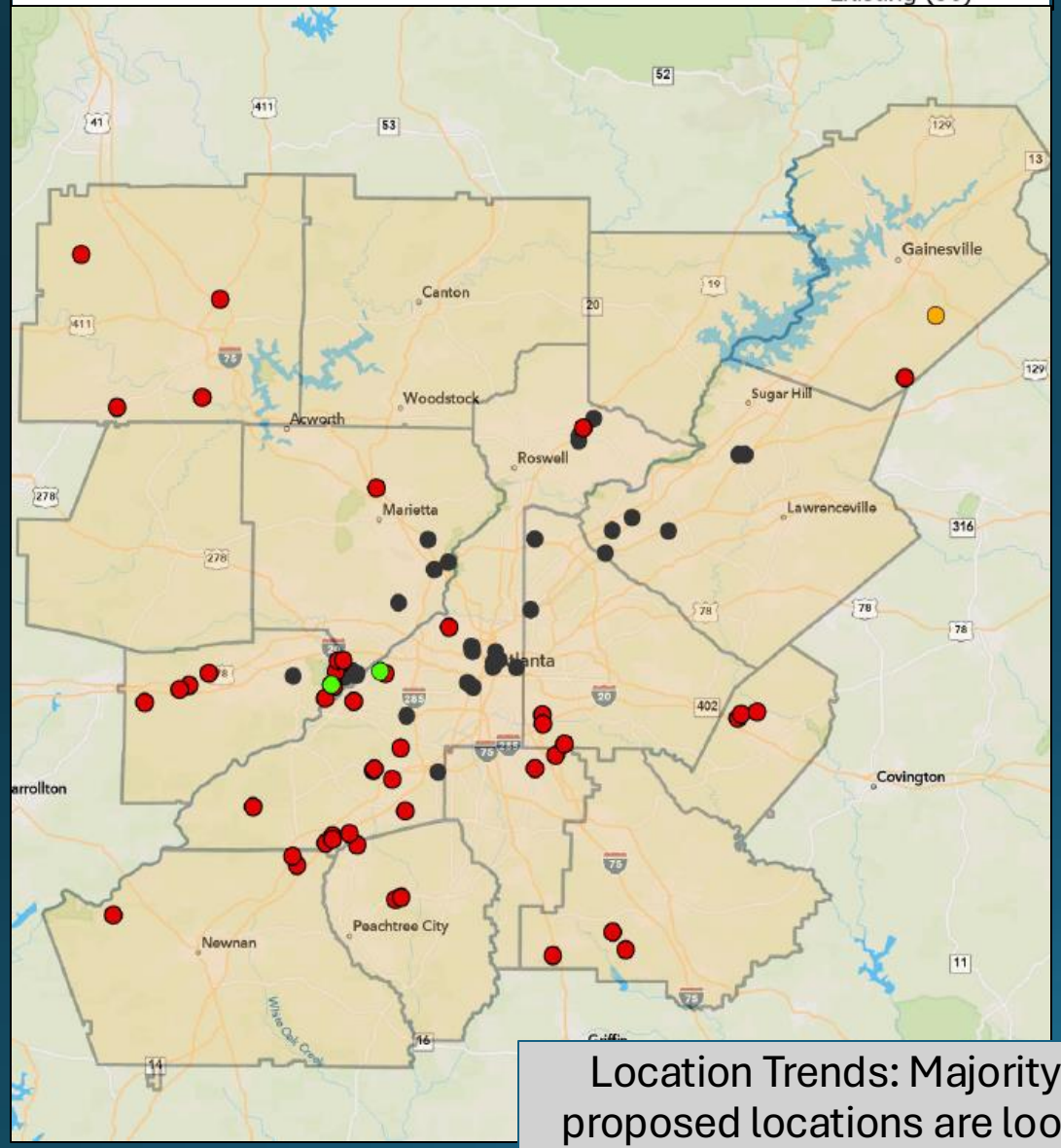
Hyperscaler: single owner and operator, typically the big players in the technology sector

Atlanta continues to have the 2nd most data center construction capacity in North America (1891.9 MW)

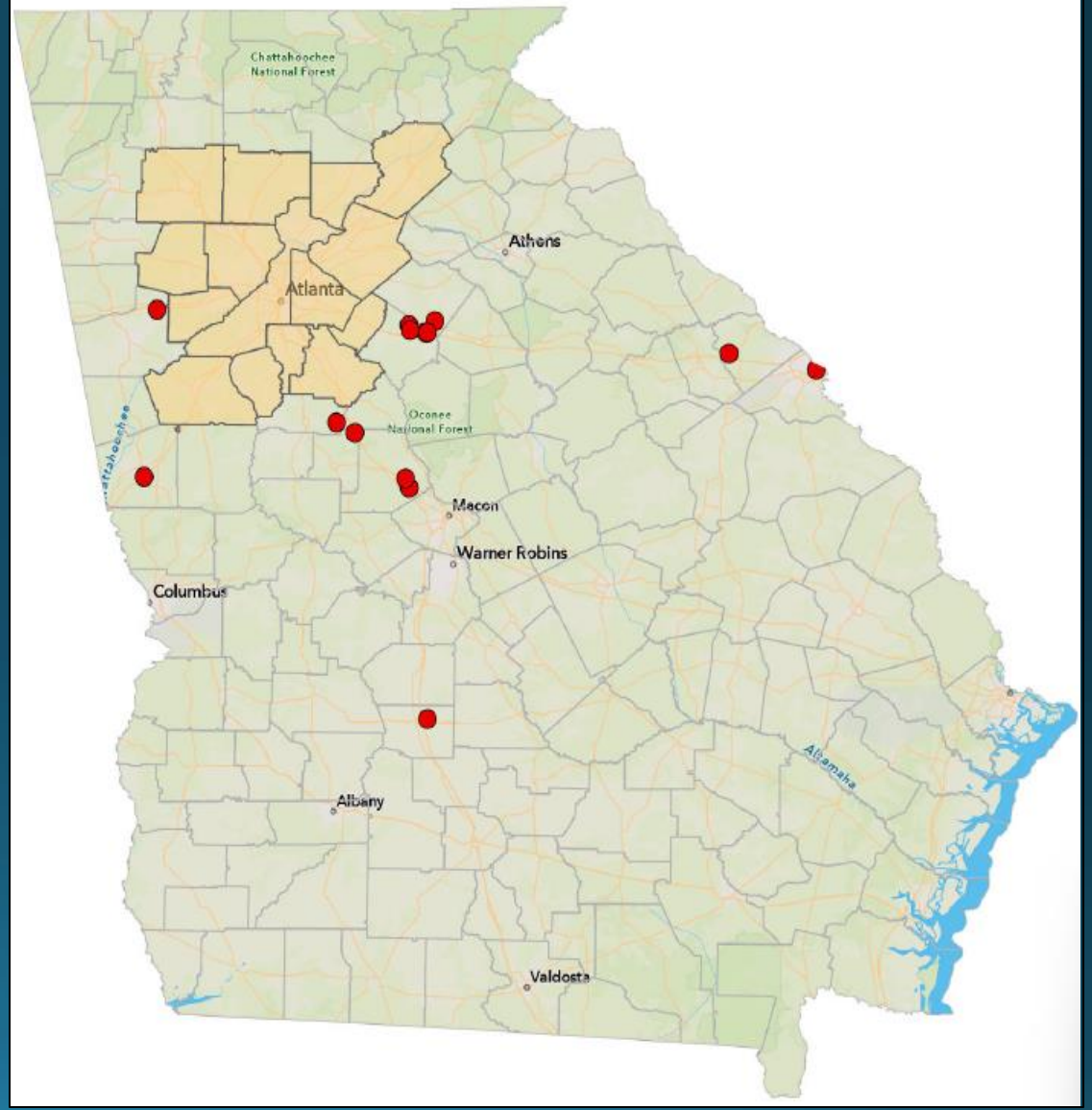


Adopted from CBRE data

Data Center Locations in the Metro Atlanta Region



Data Center Locations Outside the Metro Atlanta Region



Location Trends: Majority of proposed locations are looking for larger available tracts of land

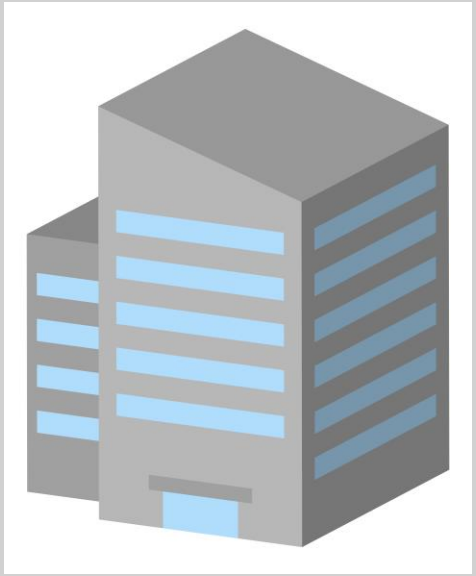
Energy and Data Centers

1 Megawatt (MW) = one million watts of power, and is enough to supply 650 homes

Small data centers today are ~50MW

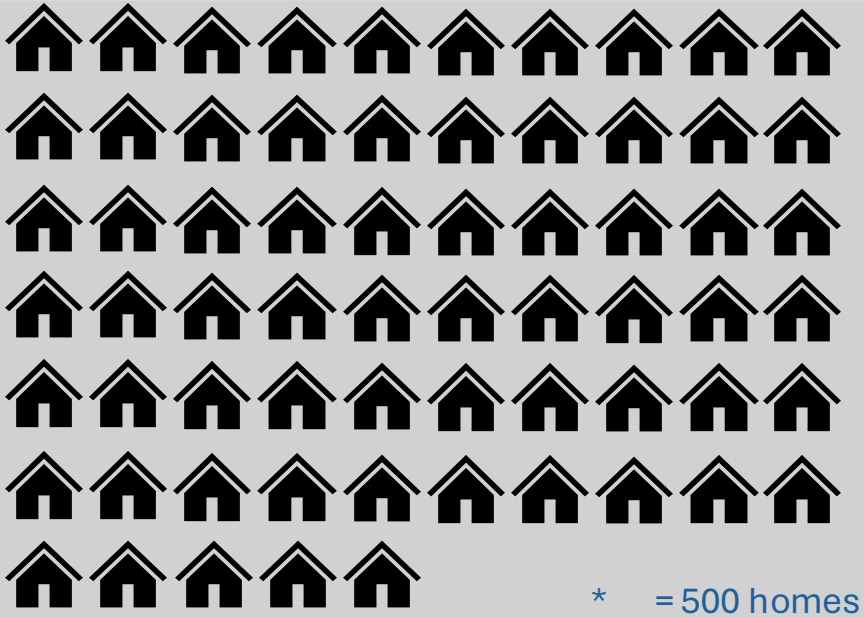
Today data center proposals can be upwards of 1 GW

50 MEGAWATTS CAN POWER EITHER



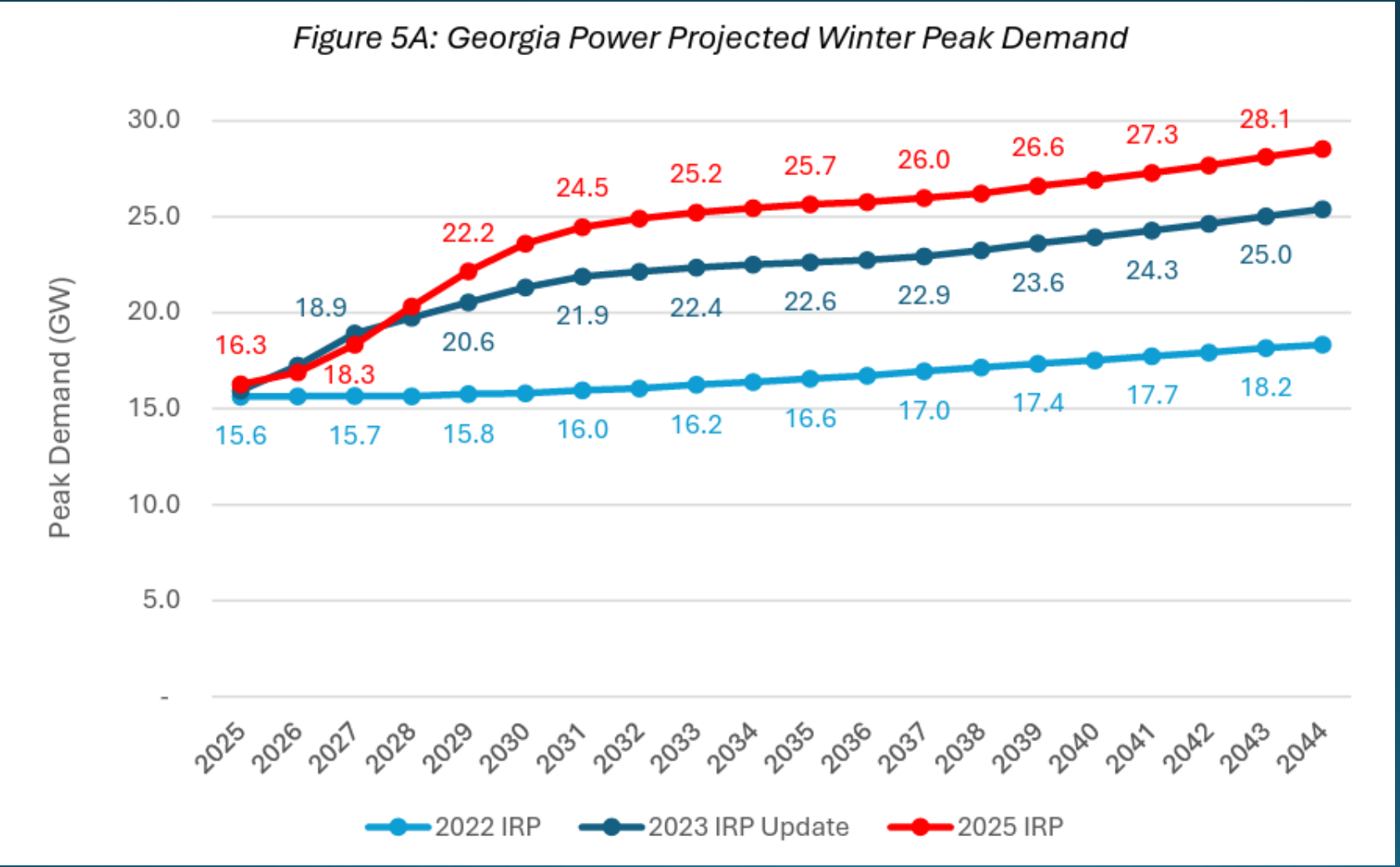
1 Small Data Center

OR



32,500 Homes

Increased forecasted energy demands mostly associated with data centers

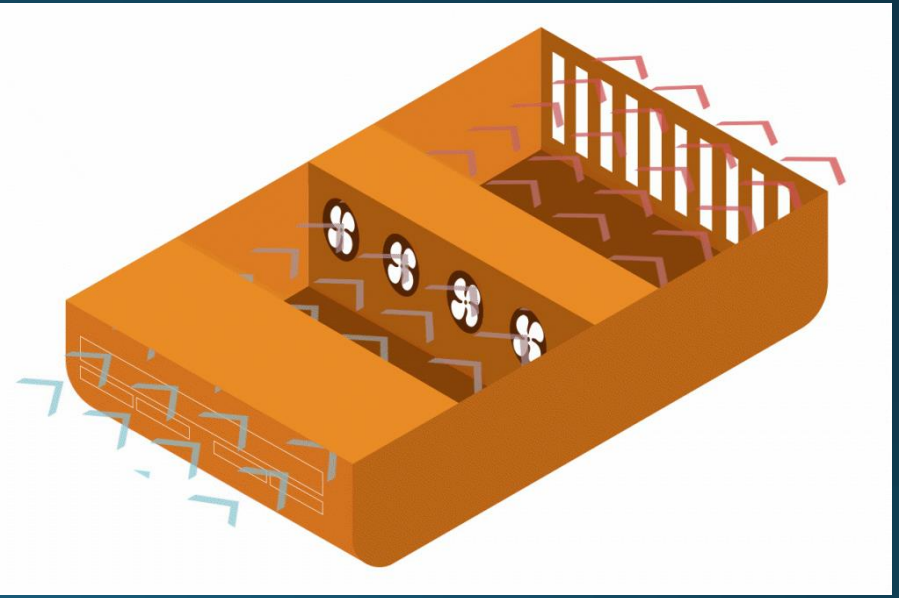


Source: Georgia Power, 2025 IRP

Cooling and Water Use in Data Centers

Cooling Technologies

- Operational temperature is imperative to the stability of system performance
- Heat removal by the cooling system is one of the most prominent challenges in the maintenance of data centers
- “**Fatal heat**”- damages the performance of components of the data center
- ~30% of the power consumption goes towards cooling



Types of Data Center Cooling

- Air Cooling
- Liquid Cooling
- Immersion Cooling
- Evaporative Cooling
- Closed-loop Cooling
- Hybrid Cooling
- Free Cooling

Relevant cooling methods to metro Atlanta

Evaporative water cooling:

Uses natural water evaporation process to remove heat from the air

Water intensive

Can lose up to 80% of water to the atmosphere

Reduces return water flow to rivers and reservoirs

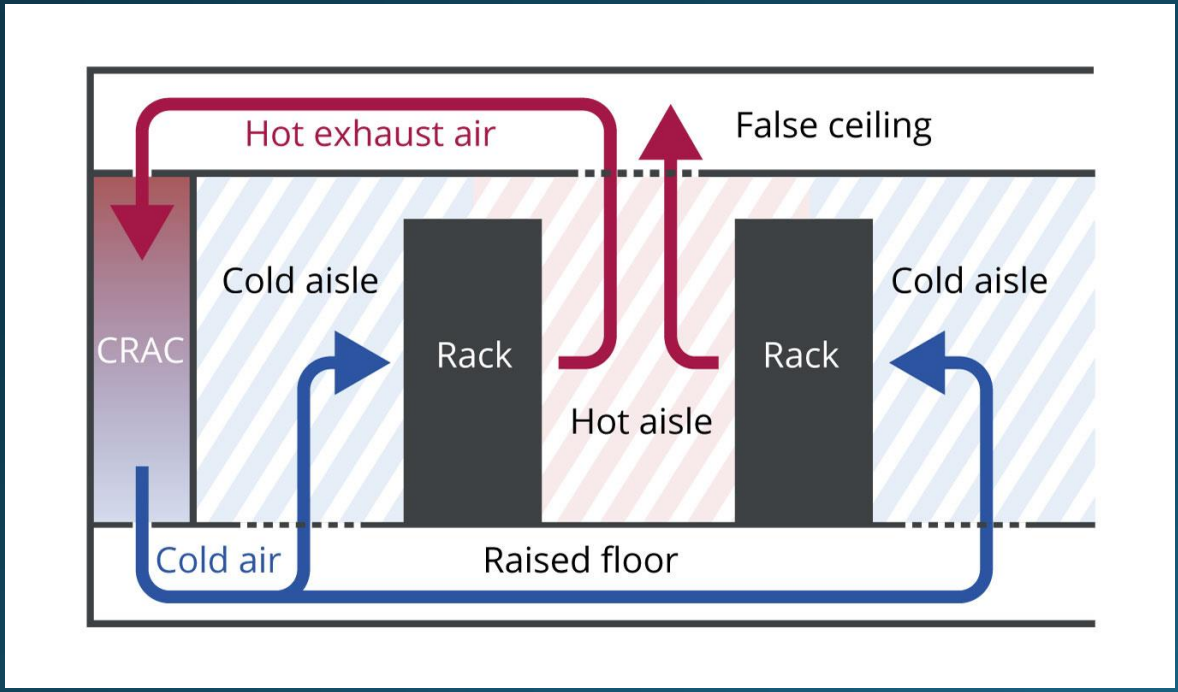
‘Closed-loop’ cooling:

A water-glycol mix continuously circulates in a sealed circuit to absorb heat

Uses significantly less water

More expensive to install and operate

Air-Cooling System



Air-cooling was once the most widely used; suitable for lower-density computing

In-efficient in larger centers due to low density and heat dissipation capacity in the air

Traditional Evaporative Cooling

- Liquid Cooling - Ideal for high-density and high-performance computing
  - More efficient heat transfer through cool plates
- More efficient heat removal
  - Allows for closer component packing
  - Greater computing capacity within the same footprint
- Communities should anticipate evaporative cooling methods in the initial site plan proposal
- ~80% water is lost due to evaporation

(Google 2024 Environmental Report)

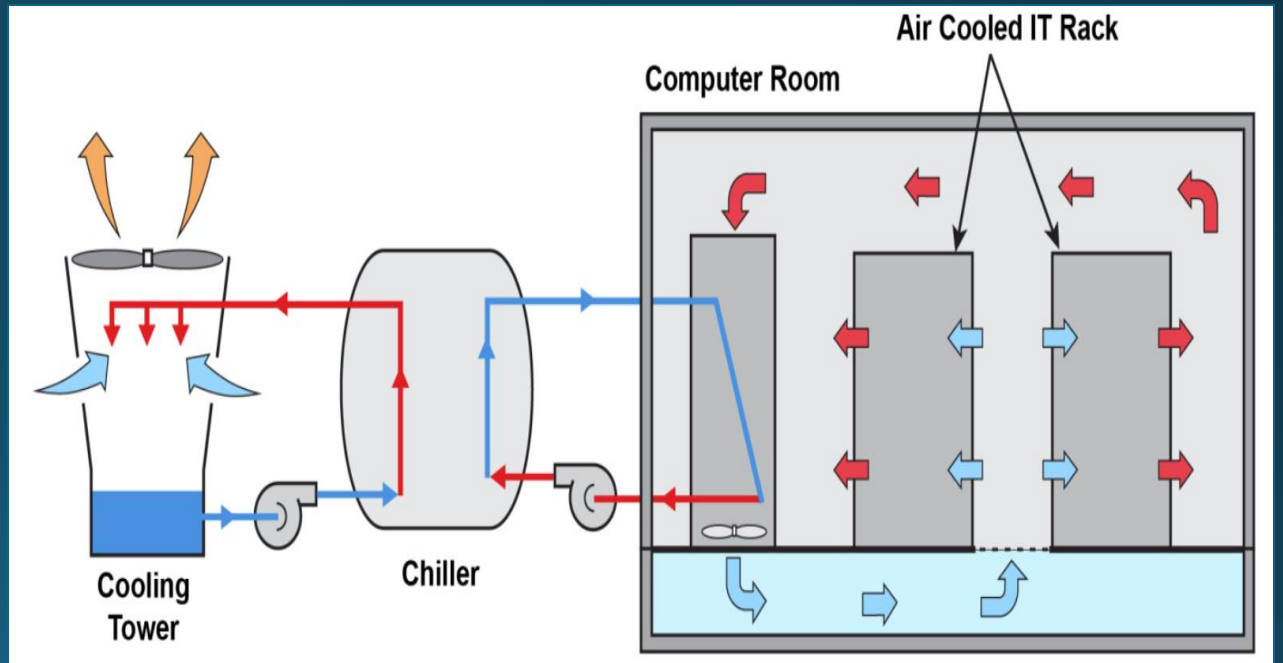
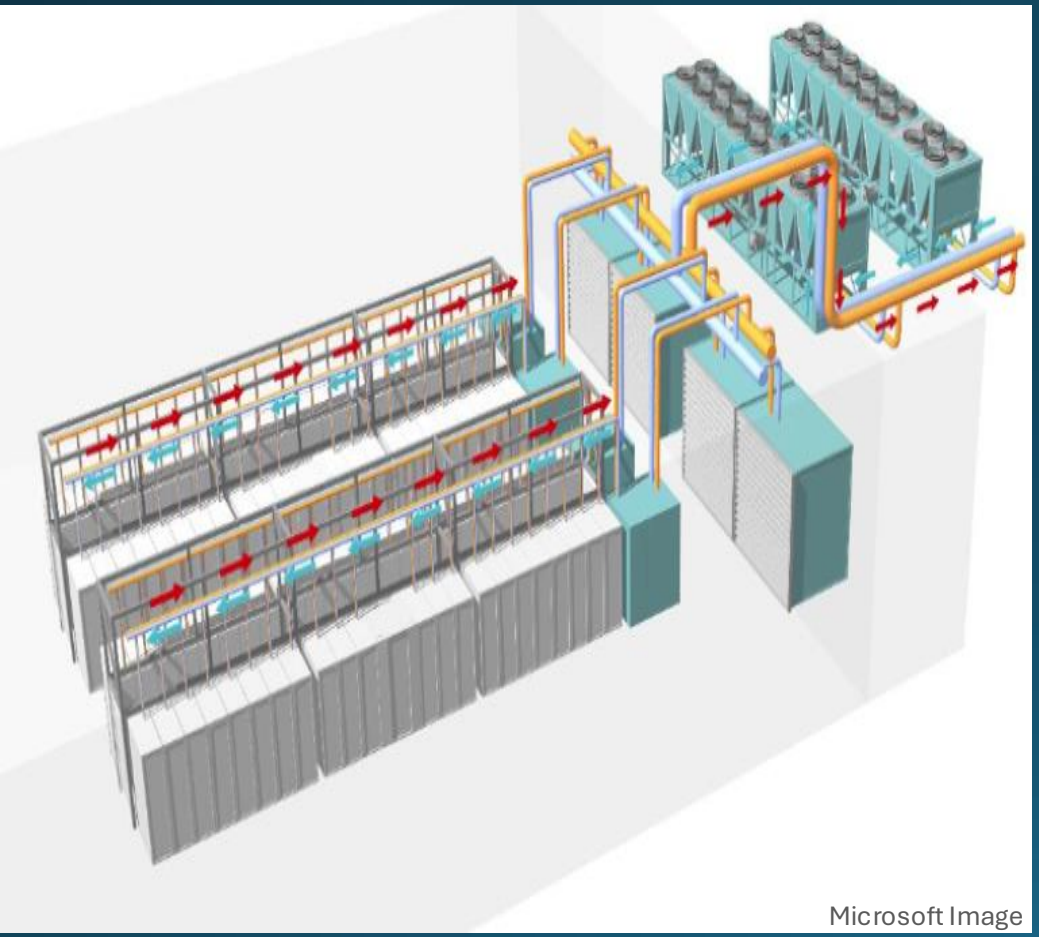


Figure 1: Schematic of a Typical Data Center Evaporative Cooling System

U.S.D.O.E

Stewarding our limited resources with closed-loop technologies



Microsoft Image

- A water-glycol mix circulated in a closed loop system
- Minimum amount of water needed to flush/refill system as needed periodically
- Provides resilience to facility during moments of drought and emergency outages
- Reduced impact to regional water supplies

Though it uses less water, the capacity required may still be similar to other commercial/industrial water users in a community.

Closed-loop cooling recommended over Evaporative

Stewarding our limited resources

Tradeoffs

- *Larger capital investment*
- *Physical footprint*
- *Higher energy demands*

How much water are data centers requesting?

Depends on

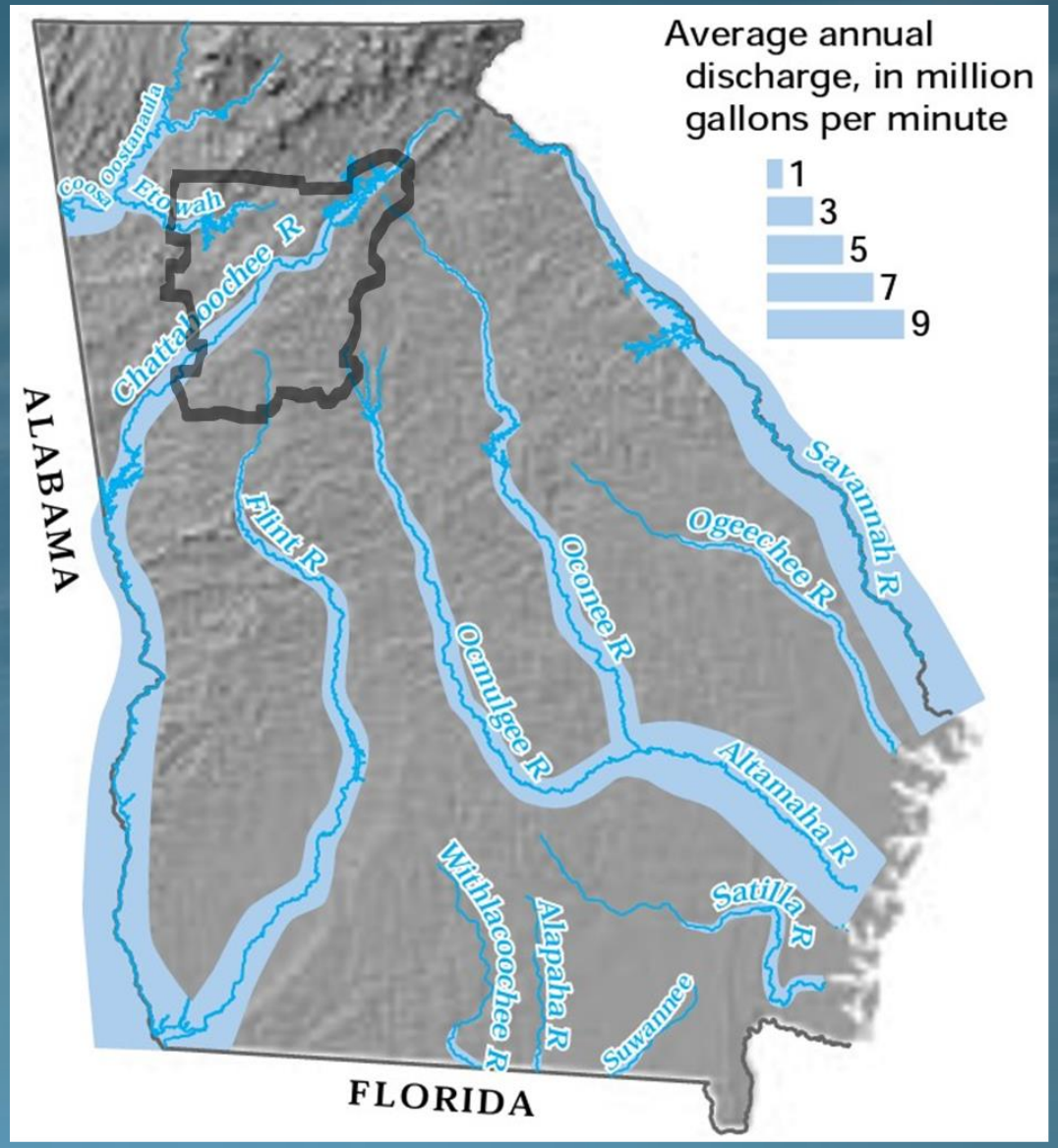
Size	Scale Building or campus?	Type of Facility Data storage vs AI/Processing	Energy Demands	Type of Cooling Air vs Liquid Evaporative vs Closed-Loop

Water demand requests in Metro Atlanta

Evaporative	Closed-Loop
As much as 9 million gallons per day	Typical range 5,000 to 50,000 gallons per day

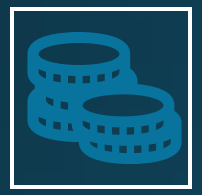
Why Cooling Methods Matter in Metro Atlanta?

- One of the smallest available surface water supplies of any major metro area
- Drought-prone
- Stewarding water resources for metro and downstream users
- Leaders in water conservation – by necessity



USGS

Considerations for Local Communities



Local Economic Impacts

Job Creation

Land Use Present and Future

Additional Infrastructure Needs

Environmental Health Impacts

Drought Management

Emergency Outages

Critical Issues

"The promise of revenue expansion and diversification will require strategic planning to ensure community needs are addressed in concert with achieving long-term economic prosperity for the County."

-Prince William County 2023 Data Center Industry Tax Revenue Report

Photo Credit: World Bank

How could a data center benefit your community?

Significant tax revenue growth

- Property taxes from real estate and infrastructure investments
- Business taxes from operations or equipment
- Sales taxes on equipment purchases
- Increased revenue could serve to reduce or eliminate property taxes for residents

Financial Planning

- Direct revenues toward community priorities, such as:
  - Education programs
  - Affordable housing funds
  - Fire and safety investments
  - Parks and recreation
  - Utility upgrades
  - Sustainability and resilience initiatives
  - Ensure strong infrastructure before offering tax reductions

Epicenter for further commercial and economic growth

- Indirect economic boost through increased income tax revenue and consumer spending
  - Fund public services, infrastructure projects, and community development

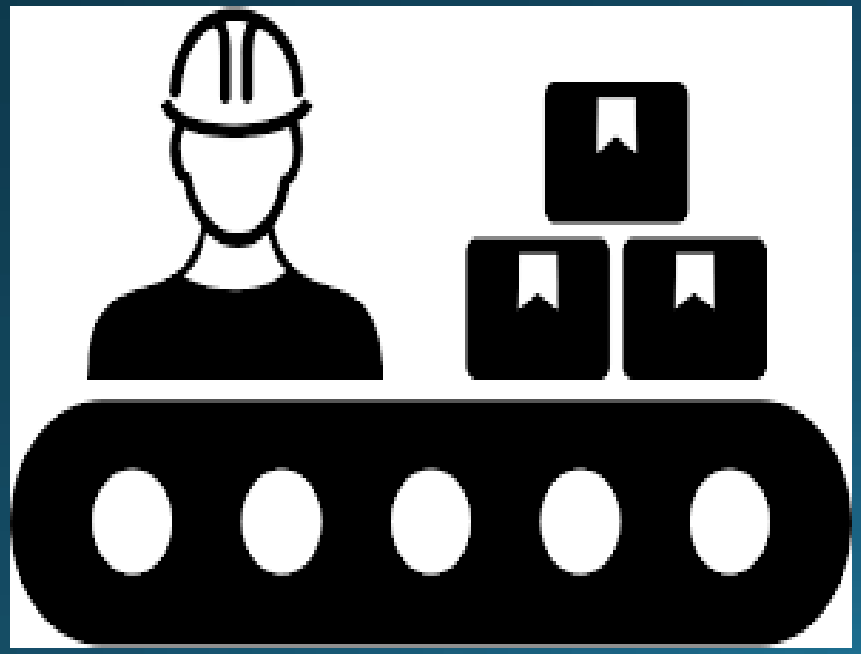
Workforce development

- Data center could provide or support work force training programs for the community
- Create high-paying construction jobs
- Skilled technical roles

Job Creation for Data Centers Lags Behind Similar Sized Developments

Between **200 and 1,000 jobs**

typical headquarters, manufacturing, or shared service operations



Between **5 and 30 jobs**

typical data center (IT, custodial, security, maintenance, office)

CBRE

Consider Land use Today and in the Future

Physical infrastructure

- Understand infrastructure needs
- What does it look like?

Will the construction of a data center shift other development plans?

- Reevaluate Comprehensive Plan
- Setting precedent for future data center proposal

Adaptive infrastructure

- Can the design be adapted as technology advances?
- Risk of “Stranded assets”
  - No longer meets the design capacity
  - No longer economically viable due to technology or business needs.

Typical Infrastructure Layout

Incorporate Best Management Practices to Mitigate Environmental and Public Health Impacts

Stormwater Runoff & Water Quality

Development should prevent increases to:

- Downstream flooding
- Streambank channel erosion

Mitigate

- Water quality
- Habitat degradation

Consider increased open space requirements

Consider native tree and plant vegetation

Air Quality

Control of construction dust

Ensure backup generator exhaust meets EPA requirements

Development Ordinance Considerations

Building set-backs

Lighting directed away from adjoining property

Landscaping - mature versus young planting requirements for buffers

Noise thresholds and generator testing frequencies

Specialized fire fighting training/cooperation needs

Prepare to Address Community Concerns

Noise Impacts

Possible sources of concern:

- Generators
- Cooling systems
- Site construction
- Energy “hum”

Land Development

Possible sources of concern:

- Tree removal
- Stormwater runoff
- Traffic
- Property values

Community Awareness & Communication

Important to engage with community:

- Public outreach sessions
- Study/Mitigation efforts
- Zoning code amendments

Wastewater Considerations

- Coordinate and understand wastewater requirements from developers
- Treatment standards should meet those specified under the industrial wastewater permit
  - Biocides- Chemicals to control microbial growth and ensure water quality
- Consider discharge rate and temperature impacts on public systems

Typical Comment Provided by ARC during DRI Process

The water resources of the metro Atlanta region are critically important to the region's economic vitality and quality of life.

The region lies in the headwaters of six major river basins, where natural surface water sources are small relative to other major metropolitan areas and in need of a high level of protection.

The firm yield of water supply sources available to individual jurisdictions also varies, and some jurisdictions have larger available supplies than others.

ARC recommends a careful examination by the *Water Provider* of its capacity to meet peak-day demands for this project, in addition to other current and projected future peak-day demands.

ARC also recommends that the *Water Provider* require the installation of advanced "waterless" cooling technologies or "near waterless" technology to reduce the burden on the drinking water supplies and increase the resiliency for both the project and the potable water system.

Other Critical Issues to Anticipate:

Transmission lines may be required

Consideration and evaluation of availability and distance of existing substations and transmission lines to serve proposed data centers

- Will easements/condemnation be required on private property?
- Can clearing and construction impacts be avoided/minimized?

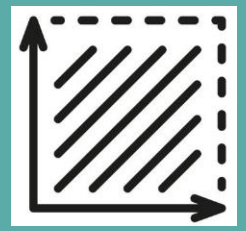
Water Service Considerations

- Understand planning for immediate demand and future capacity needs
- Assess need for additional infrastructure
  - Larger water lines, booster pumps, storage tanks, possible water supply and treatment expansions
- Data centers may desire to be regarded as critical infrastructure similar to hospitals
- Prepare for limitations of service
  - Drought Management - Consider updates needed to Drought Management Plan
  - Emergency Outages - Consider design elements and redundancy needs
- Discuss system reliability and expectations with the developer early in the process

Solar and Green Roof Installation?

On-site solar unlikely to meet full power demands but can provide benefits

1 MW of power = 5 acres of solar panels



100 MW of power = 540 acres of solar panels

Roof designs with solar or green roofs not preferrable for most sites

Associated risk concerns:

Could cause damage to expensive technology investment at the facility

Potential to disrupt operations

Green roofs require additional water during dry periods

Critical Takeaways

Developers: *Engage with water providers early.*

Water Providers: *Consider benefits of closed-loop cooling, update drought management plans + communicate clearly.*

Local Leaders: *Support policies for balanced, resilient growth.*

Trade-offs and Informed Decision Making Discussion

Current Local Government Efforts Across the Region

Current Moratoriums

- Douglas County (90 Days)
- Coweta County (180 Days)
- DeKalb County (100 Days)
- Clayton County (through end of 2025)

Ordinances Under Development

- Coweta County
  - DeKalb County
  - Douglas County

Zoning Rules Adopted

- City of Atlanta
- Forsyth County
- City of South Fulton

The resilience of our region—both today and tomorrow**—depends on all of us.**

Scan the QR Code
to visit the MNGWPD website

For Technical Assistance & additional information contact
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Metropolitan North Georgia Water Planning District