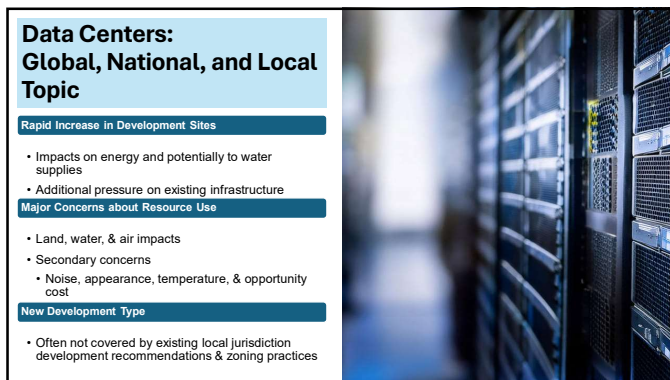
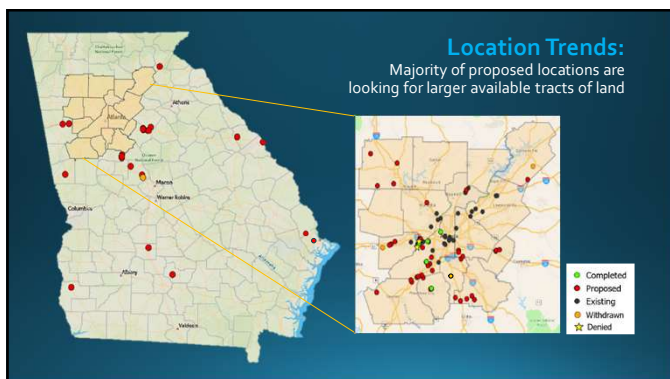




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3

Metro Atlanta only primary market with more Under Construction than Operational

Leading the country in Construction, surpassing Northern Virginia

Atlanta still an outlier

Atlanta not only ended 2025 with the most data center space under construction, but it was the only primary market to have more space being built than was operational.

Market	Total Inventory (MWh)	Under Construction (MWh)
Northern Virginia	1,955.2	1,955.2
Atlanta	2,076	2,076
Dallas-Ft. Worth	998.7	998.7
Chicago	715.1	715.1
Phoenix	170	170
San Jose	144	144
Houston, TX	126.8	126.8
New York Tri-State	123.3	123.3

*Data center space is typically measured by electricity capacity in megawatts.
Chart: Zachary Hansen
Source: CBRE

Elle/McGraw Hill Construction

4

1,465 MW

Metro Atlanta has the 2nd most constructed data center inventory in the world

Figure 2: Data Center Inventory by Market

Market	Q1 2026 (MW)	Q1 2025 (MW)	Q1 2024 (MW)	Q1 2023 (MW)
Northern Virginia	4,000	3,500	3,000	2,500
Atlanta	1,465	1,200	1,000	800
London	1,500	1,200	1,000	800
Dallas-Ft. Worth	1,000	800	600	400
Frankfurt	1,000	800	600	400
Tokyo	1,000	800	600	400
Seoul	1,000	800	600	400
Singapore	1,000	800	600	400
Hong Kong	1,000	800	600	400
Paris	1,000	800	600	400
Amsterdam	1,000	800	600	400
Sao Paulo	1,000	800	600	400
Guangzhou	1,000	800	600	400
Bangkok	1,000	800	600	400
Beijing	1,000	800	600	400

Source: CBRE Research, Q1 2026

5

Increased forecasted energy demands mostly associated with data centers

Figure 5A: Georgia Power Projected Winter Peak Demand

Year	2022 IRP (GW)	2023 IRP Update (GW)	2025 IRP (GW)
2025	15.3	15.3	15.3
2026	15.6	15.6	15.6
2027	15.7	15.7	15.7
2028	15.8	15.8	15.8
2029	15.9	15.9	15.9
2030	16.0	16.0	16.0
2031	16.2	16.2	16.2
2032	16.3	16.3	16.3
2033	16.4	16.4	16.4
2034	16.5	16.5	16.5
2035	16.6	16.6	16.6
2036	16.7	16.7	16.7
2037	16.8	16.8	16.8
2038	16.9	16.9	16.9
2039	17.0	17.0	17.0
2040	17.1	17.1	17.1
2041	17.2	17.2	17.2
2042	17.3	17.3	17.3
2043	17.4	17.4	17.4
2044	17.5	17.5	17.5

Source: Georgia Power, 2025 IRP

6

Types of Data Center Cooling

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



Relevant Cooling Methods to Georgia

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, but requires more energy
More expensive to install and operate

7

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
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Water demand requests in Metro Atlanta

Evaporative

Varies, but as much as
9 million gallons per day*
has been requested

Closed-Loop

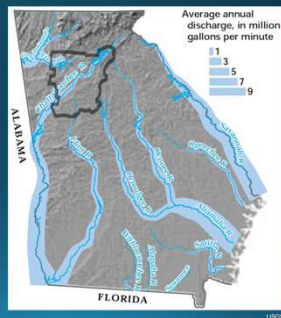
Typical range
5,000 to
50,000 gallons per day

*Later changed to
closed-loop cooling

8

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
- Focus on water conservation – by necessity



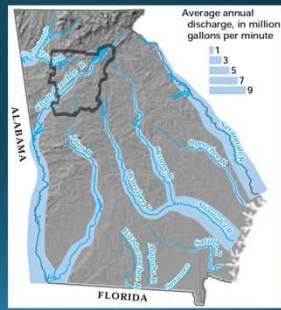
9

What about Non-Potable Reuse Water?

Before considering reuse solutions, need to understand:

- Net consumption
- Downstream needs
- Local infrastructure, opportunities, and constraints

Water management decisions are different for upstream and coastal communities



10

Considerations for Local Communities



11

How could a data center benefit your community?

Significant tax revenue growth

- Property taxes
- Business taxes
- Sales taxes

Epicenter for further commercial and economic growth

- Indirect economic boost via income tax revenue and consumer spending
- Fund public services
 - Infrastructure projects and community development

Financial Planning

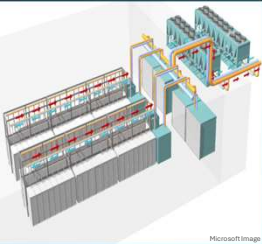
- Direct revenues toward community priorities, such as:
- Education
 - Housing funds
 - Fire and safety investments
 - Community development
 - Infrastructure upgrades

Workforce Development

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

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Stewarding our limited resources with Non-Evaporative Cooling technologies



Closed-loop cooling recommended over Evaporative Stewarding our limited resources

- A water-glycol mix or other refrigerant mixture 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.

Tradeoffs

- Larger capital investment
- Physical footprint
- Higher energy demands

Microsoft Image

13

Site Readiness

Physical Infrastructure	Environmental & Public Health Impacts	Water Service Considerations
• What does it look like? • Does construction/operations of project shift other development plans? • Re-evaluate Comprehensive Plan • Setting precedent for future proposals • Adaptive Infrastructure or "Stranded Asset"?	• Stormwater runoff and water quality • Community awareness, consideration and communication • Coordination with fire/emergency services • Heat island	• Immediate demand and future capacity needs • Additional infrastructure needs • Coordinate and understand wastewater requirements from developers • Know developer's system reliability and expectations early in discussions • Critical infrastructure

14

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
- Alternative power generation applications



15

Addressing Community Concerns



Noise Impacts

Possible sources of concern:

- Generators
 - Testing and running
- Cooling systems
- Site construction
- Energy "hum"
- Sub-level decibels impacting wildlife and communities



Land Development

Possible sources of concern:

- Tree removal
- Stormwater runoff
- Traffic
- Property values
- Heat Islands



Community Awareness & Communication

Important to engage with community to address:

- Daily-life impacts
- Public outreach sessions
- Study/Mitigation efforts
- Zoning code amendments

16

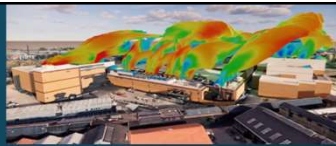
Air Quality

- Possible degradation during construction and in operations
 - Construction dust
 - Diesel generators (back up energy supply)
- Exposure to fine particulate matter, even at a low level, can pose substantial health risks and threaten local wildlife and minimize plant growth and yield -- *p. Dominici, professor of Biostatistics, Harvard's School of Public Health*



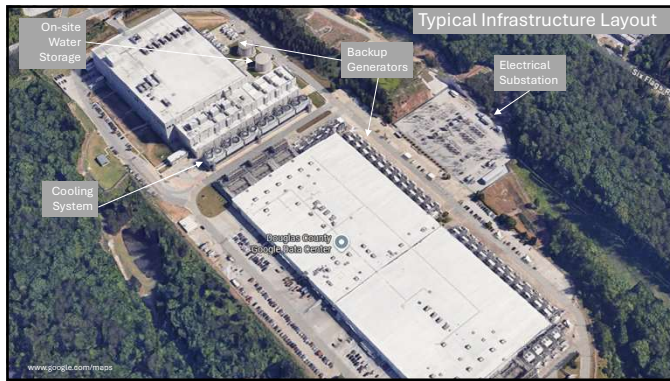
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Heat Island Effect

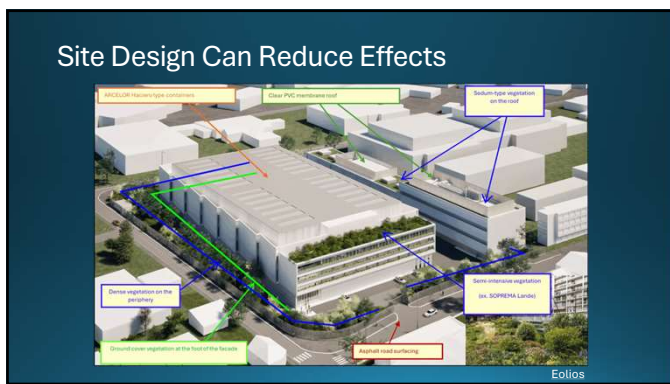


- Emerging international research comparing AI Hyperscalers to older data centers
- On-site heat release via energy-intensive processes
 - Increasing computation demands
 - Powering cooling systems
- Recent study found a local increase of 3.6 F (Marinoni et al, 2026)
 - Extreme cases up to 16.4 F
 - Heat impacts being felt upwards of 6 miles from site
- Dense urban environment acts as a **heat trap**, limiting dispersion and favoring recirculation on neighboring facades and air intakes

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20

Solar and Green Roof Installation?

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

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

1 MW of power = 5 acres of solar panels



100 MW of power = 540 acres of solar panels

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

21



Community Benefit Agreements

Helps to address public concerns

- Identifies key community concerns
- Provide greater benefits to communities impacted by data center construction and operations

Several key features

- Transparency
- Community investments
- Sustainability for communities

Bookenda

22

22

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.

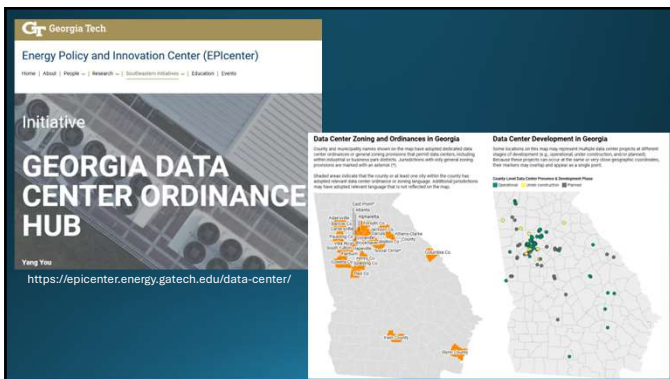
The firm yield of water supply sources available to individual jurisdictions also varies, and some jurisdictions have larger available supplies than others.

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.

23

23



Georgia Tech

Energy Policy and Innovation Center (EPICenter)

Home | About | People | Research | Southwestern Initiative | Education | Goals

Initiative

GEORGIA DATA CENTER ORDINANCE HUB

Yang Yu

<https://epicenter.energy.gatech.edu/data-center/>

Data Center Zoning and Ordinances in Georgia

County and metropolitan areas shown on the map have adopted various data center zoning ordinances to address zoning issues in their local data center clusters. Zoning ordinances are marked with an asterisk (*).

Data Center Development in Georgia

Some locations on this map may represent multiple data center projects at different stages of development. A color-coded color indicates the project's status. Darker shades of green indicate projects that are in the final stages of development. Darker shades of green indicate projects that are in the final stages of development. Darker shades of green indicate projects that are in the final stages of development.

24

The Big Picture



Developers
Engage with water providers early in project planning discussions.



Water Providers
Consider impacts and establish parameters for water use



Local Leaders
Support policies for balanced, resilient growth.

25



**Understand trade-offs
for balanced and resilient growth
and informed decision making**

26

Scan the QR Code
for additional resources



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



For Technical Assistance & additional information contact
Danny Johnson, PE
djohnson@atlantaregional.org
ARC/Metropolitan North Georgia Water Planning District

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Science for Georgia



www.scienceforgeorgia.org
© Science for Georgia, Inc 2025

Data Centers

Jessica Owens
Sept 2026
jessica.owens@sci4ga.org

1



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- Science communication training for university students and young professionals
- Science outreach events for adults
- Advocating to ensure science has a seat at the table

2

Data Centers

What they make possible – Pro's

- Support small businesses
- Research breakthroughs
- The cloud
- How many connected devices in a home?
 - About 21 items in the home – phones, computers, gaming systems, thermostats, lightbulbs, toasters, fridges – we did this to ourselves

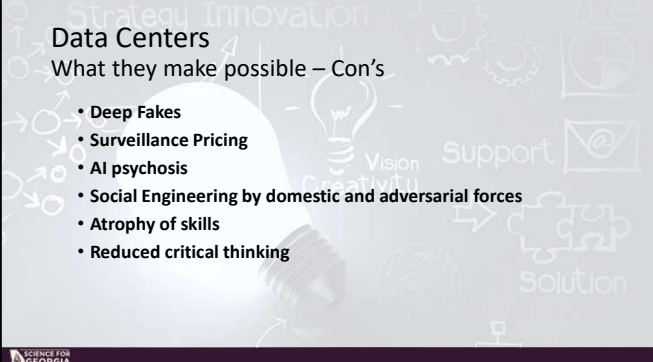


3

Data Centers

What they make possible – Con's

- Deep Fakes
- Surveillance Pricing
- AI psychosis
- Social Engineering by domestic and adversarial forces
- Atrophy of skills
- Reduced critical thinking



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Data Centers

Like nothing we've seen before



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5

Infrastructure

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6

Environmental Impacts

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10

Environmental Impacts

- Immediate Vicinity:
 - Noise & Light Pollution
 - [Heat islands](#)
 - Water runoff from impervious surfaces
 - Power Transformers
 - behind the meter
 - backup power
- Locality:
 - Strain on water resources.
 - What's in the wastewater?
 - Where are the new power lines going?
- Big Picture
 - Power consumption in Georgia mainly via polluting sources and water intensive

Noise has a negative impact on ability to:

71% Rest or Relax

65% Sleep Undisturbed

54% Concentrate

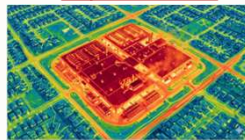


Image Source: <https://computerforecast.com/blog/data-center-heat-island-problem-operators-refusing-to-own/>

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Noise

Respondents reporting negative impacts:

95 %

Mental Health

90 %

Home Value

87 %

Physical Health

“ I feel like my home is being invaded and the quality of my life and family's life have suffered. Simple pleasures of enjoying your home have been robbed from us.”

Q: Do you hear the noise inside your residence?

	More than 1/2 Mile	Between 500 feet and 1/2 Mile	Less than 500 feet
Yes	32 (76.2%)	37 (88.1%)	17 (89.5%)
No	10 (23.8%)	5 (11.9%)	2 (10.5%)

quiet.
COMMUNITIES

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12

Pollution

See where diesel-powered data center generators are polluting Virginia

Pollution from generators at data centers could cause respiratory symptoms and deaths in the region, an analysis for The Washington Post found.

May 25, 2023

83 12 min 75 Summary 20 31 12 388

Energy Dept. directs data centers to use backup generators during heat wave, freeing up power for AC

By J. J. Moore

Sustainability MAGAZINE

With 55% of Google searches generating AI summaries, the tech giant's emissions have risen 48% since 2019 as billions of automated responses strain data

• June 10, 2026

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13

When the generators turn on in Virginia

generator running

The Atlanta Journal-Constitution

Georgia's first data center 'pop-up' power plant is breaking rules, groups say

Illegal behind the meter in Covington

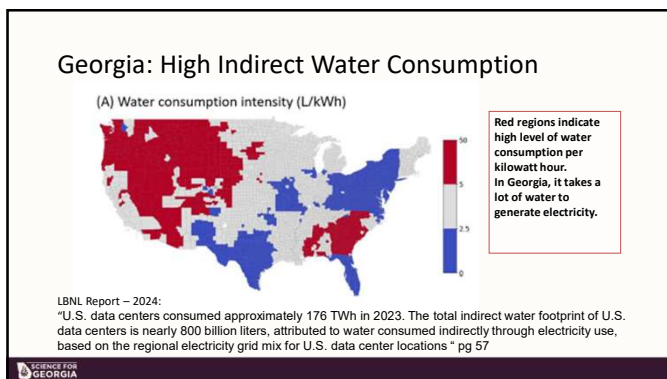
edit: I was a passenger.

Working Farmer9123 · 1d ago

Widespread dominion blp Q this morning. This would have caused data centers to go on generators.

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14



15

Cooling Systems

- Different architecture = different cooling systems
- Lack of transparency means inability to build a concise water budget

Cooling Type	Water Consumption	Discharge Profile	Energy Use	Typical Use Case
Evaporative (open-loop)	High — most water evaporates	Concentrated blowdown: salts, minerals, biocides, corrosion inhibitors, heavy metals	Lower	Majority of large modern data centers; hot climates
Closed-loop water cooling	Up to 70% lower than open-loop	Minimal — sealed system; small volumes of treated water periodically discharged	Higher	Water-stressed locations; premium installations
Air cooling	Negligible direct water use	No process water discharge	Highest	Cooler climates; smaller or older facilities
Direct liquid / immersion cooling	Very low	Coolant fluids may contain refrigerants or PFAS compounds; specialized handling required	Low-moderate	Emerging, high-density GPU installations
Free cooling	Negligible	Thermal discharge to receiving water (river, sea)	Lowest	Cold climates; near large water bodies

Source: Saha, I.K. (2020). Understanding How Data Centers Impact Surface and Ground Waters. USA Cooperative Extension TP-07.

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Waste Water

Cooling System	Common Fluid Type	Direct Contact with Electronics?	Key Requirement
Traditional air-cooled HVAC	Chilled water	No	Facility heat removal
Direct-to-chip cooling	Water-glycol / low-conductivity coolant	No, inside cold plate loop	Thermal efficiency and corrosion control
Rear-door heat exchanger	Water / water-glycol coolant	No	Rack-level heat removal
Single-phase immersion cooling	Dielectric fluid	Yes	Electrical insulation and stability
Two-phase immersion cooling	Specialized dielectric fluid	Yes	Boiling point and vapor control
All liquid cooling loop	Glycol-water or engineered coolant	Usually no	Stable high-density cooling

Source: <https://www.itsocall.com/what-fluid-is-used-in-data-centers-data-center-cooling-fluid-guide?e175B2020Cconachill/>

17

Development

Fayetteville residents, Flint Riverkeeper plan suit over QTS center runoff that bubbled and left sludge

James Nye
Fri, June 16, 2023 at 3:04 PM EDT · 2 min read

LOCAL

North Georgia neighbors say data center responsible for dirty well water

<https://www.wbtv.com/news/local/north-georgia-neighbors-say-data-center-responsible-dirty-well-water/7ERXGUYXHVAGPAPQJ6UVC8BQ/>



"MOVE FAST AND BREAK THINGS, UNLESS YOU ARE BREAKING STUFF; YOU ARE NOT MOVING FAST ENOUGH."

Mark Zuckerberg
CEO, Facebook

18

Deteriorating Public Trust



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Jobs

WIRED



Inside Meta's Push to Put Robots to Work in Data Centers

The company is testing robots that can swap cables, reset servers, and take on other tasks performed by technicians, fueling concerns among some workers that their jobs could be at risk.

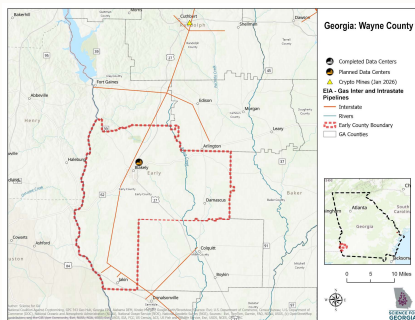
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Data Centers

Like nothing we've seen before

Case Study: QTS Blakely



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21

Data Centers

Like nothing we've seen before

Case Study: QTS Blakely

- 12 million square feet
- 160 employees
- Will they be located in Blakely or remote?

Early County, GA
City of Blakely
vs 12,000,000 Sq ft

Planned Data Centers
What is 12 million Square Feet

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22

Data Centers

Like nothing we've seen before

Case Study: QTS Blakely

- 22,625,000 sq ft impervious surface
- How does this affect
 - floodplains?
 - wetlands?
 - aquifer?
- Does this tax revenue prepare the community for changes to the area in the event of an emergency?
- Are we reducing resilience?
- Surety Bonds

Early County, GA
City of Blakely
Floodplains

Planned Data Centers
USA Flood Hazard Reduced Set (FEMA)
100 Annual Chance Flood Hazard
100 Annual Chance Flood Hazard
Future Conditions 1% Annual Chance Flood Hazard
Regulatory Roadway
Area with Reduced Risk Due to Levee
Special Floods
Early County Boundary

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Tax breaks

- FY 2026: \$2.5 Billion Loss
 - Loss of \$3B in FY 2027
- 70% of development would show up anyway.

State agencies should plan to freeze spending, budget office says

July 31, 2026 3:24 PM

Carl Vinson Institute of Government
UNIVERSITY OF GEORGIA

Tax Incentive Evaluation
Georgia Data Center Sales & Use Tax Exemption

GOOD JOBS FIRST

Georgia estimates \$2.5 billion in losses to data center tax breaks in a single year
Tax breaks expected to cost Peach State residents nearly \$3 billion in FY 2027
February 11, 2026 By Kiana Tanczos

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Need For Transparency

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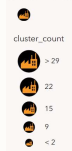
25

Data Centers

Where are they?

<https://bit.ly/DataCenterGA>

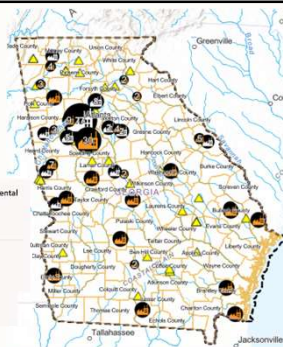
Planned Data Centers in GA (as of 06 Jan 2026)



Completed Data Centers in GA



North American Environmental Atlas (CEC)
North America Rivers
North America Lakes
Crypto Mines in GA



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Ordinances – Community Protections

- Zoned Heavy Industrial
- Power & Water Infrastructure
 - Costs not passed onto consumers
 - Impact assessments – where will it all go?
 - 15-20 yr minimum contracts
 - Testing of wastewater for chemicals
- Water use plan (esp. during drought)
- Noise & light abatements
- Back-Up Power from non-polluting sources
- Surety bonds for end-of-life planning (decommissioning)
- SUPs

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Ordinances – Community Protections

- **Make them pay for**
 - County/City Enforcement officer
 - Transparent and uniform reporting
 - Water, sewer, and power upgrades



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Ordinances – Transparency & Incentives

- **Transparent and uniform reporting**
 - Water & Electricity Use
 - Noise, Heat, Light, and Water Testing
 - Taxes Paid
- **Community Benefit Plans - What are they giving back?**
 - College fund for kids
 - Weatherization funds
 - Updated STEM facilities / curricula
 - AI certificates
 - Hire Local
 - Community space improvements



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State Level Tools

- End tax breaks
- Restrict NDAs and require transparent reporting
- Ensure costs cannot be passed to residential ratepayers and small businesses
- Require surety bonds for end-of-life decommissioning



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Thank you!

Reach out

- Advocacy Guide
- Community Impact Survey
- Join our newsletter

bit.ly/Sci4Ga-LearnMore

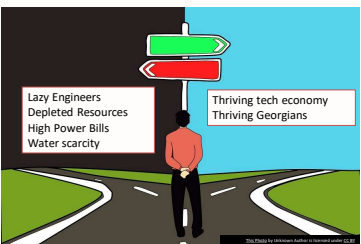
SCAN ME





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Georgia Can Make the Right Decision



Lazy Engineers
Depleted Resources
High Power Bills
Water scarcity

Thriving tech economy
Thriving Georgians

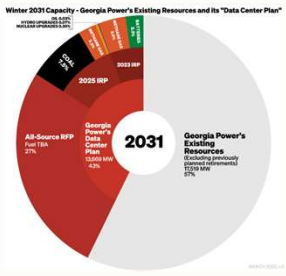
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Existing Assets vs New Assets – Cost

We are planning for continuous growth
~Double our Power Generation by 2031

- Approx 80-90% of planned additional capacity is for data centers.
- 6 GW is proposed gas expansion?



Winter 2031 Capacity - Georgia Power's Existing Resources and its "Data Center Plan"

Georgia Power's Existing Resources (including previously announced additions)
11,913 MW
42%

All-Source RFP
27,776 MW
27%

2031 RFP
2035 RFP

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