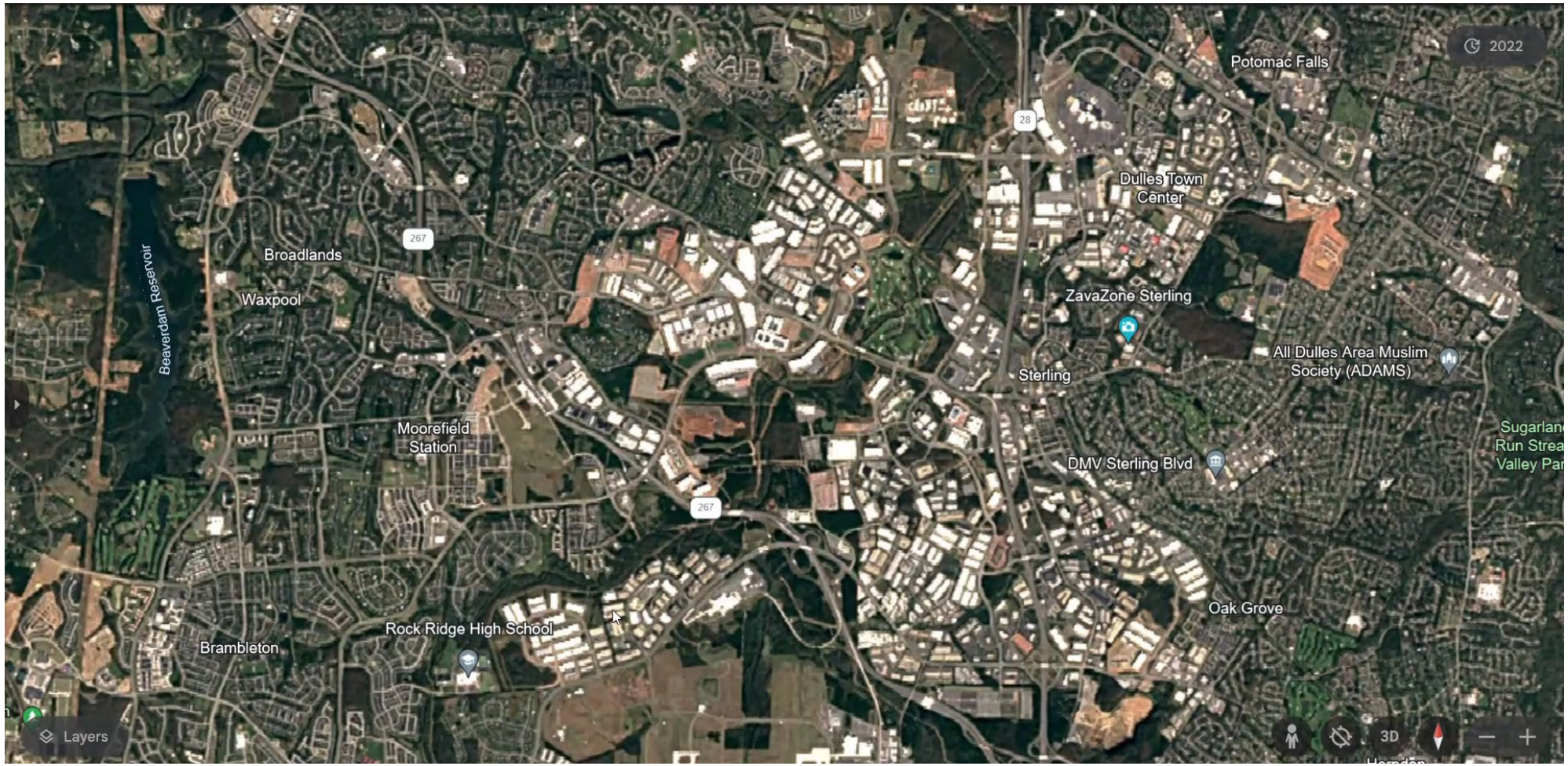
LOUDOUN VIRGINIA
ECONOMIC DEVELOPMENT

Workloads, Watts, and Where They Land: Data Center Shifts

BUBBLE, BURST, BUBBLE, BURST, BOOM



Loudoun's Data Centers by the Numbers

$1,000,000,000

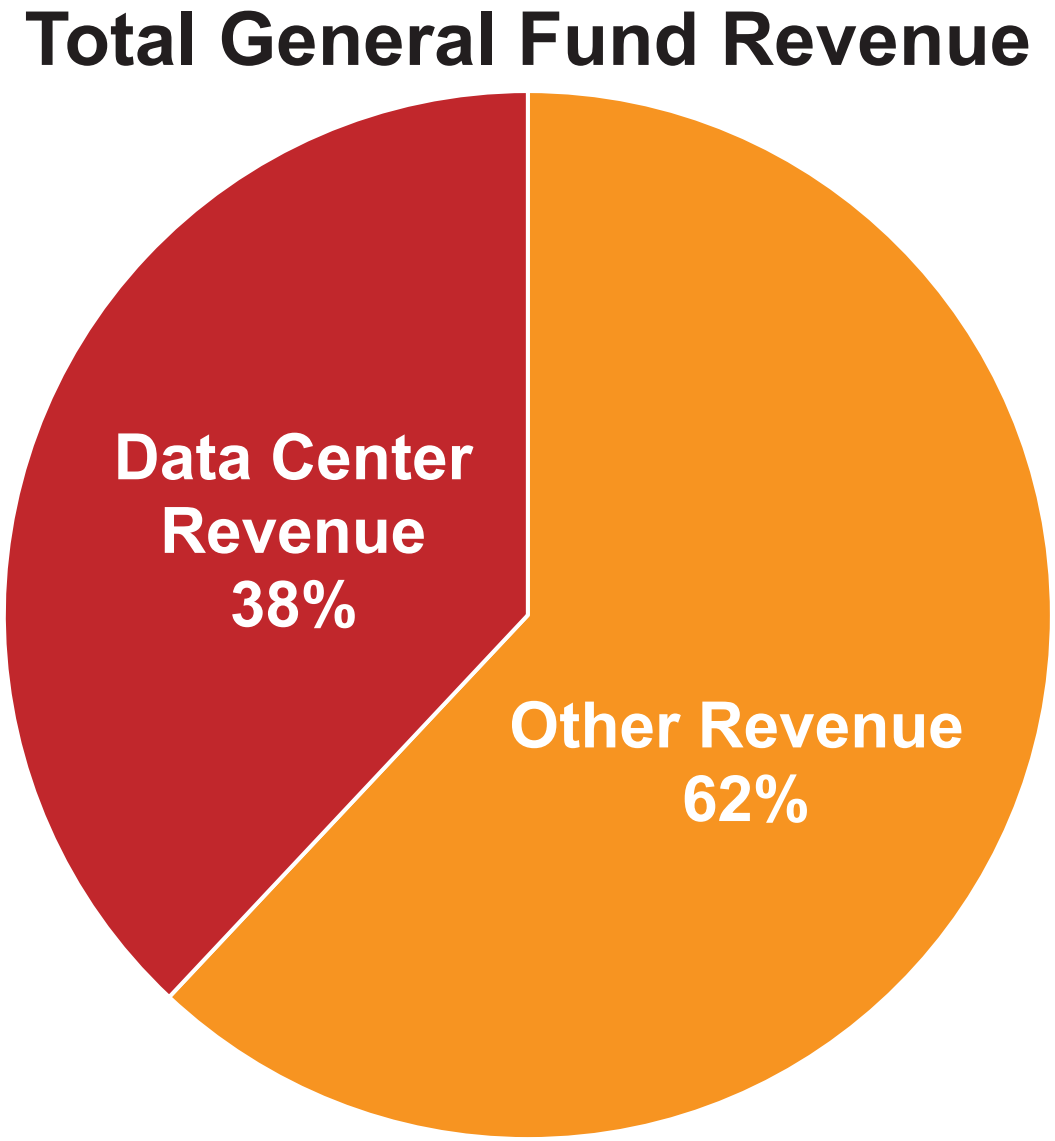
43,000,000 (+6m)

15,000

26 / 1

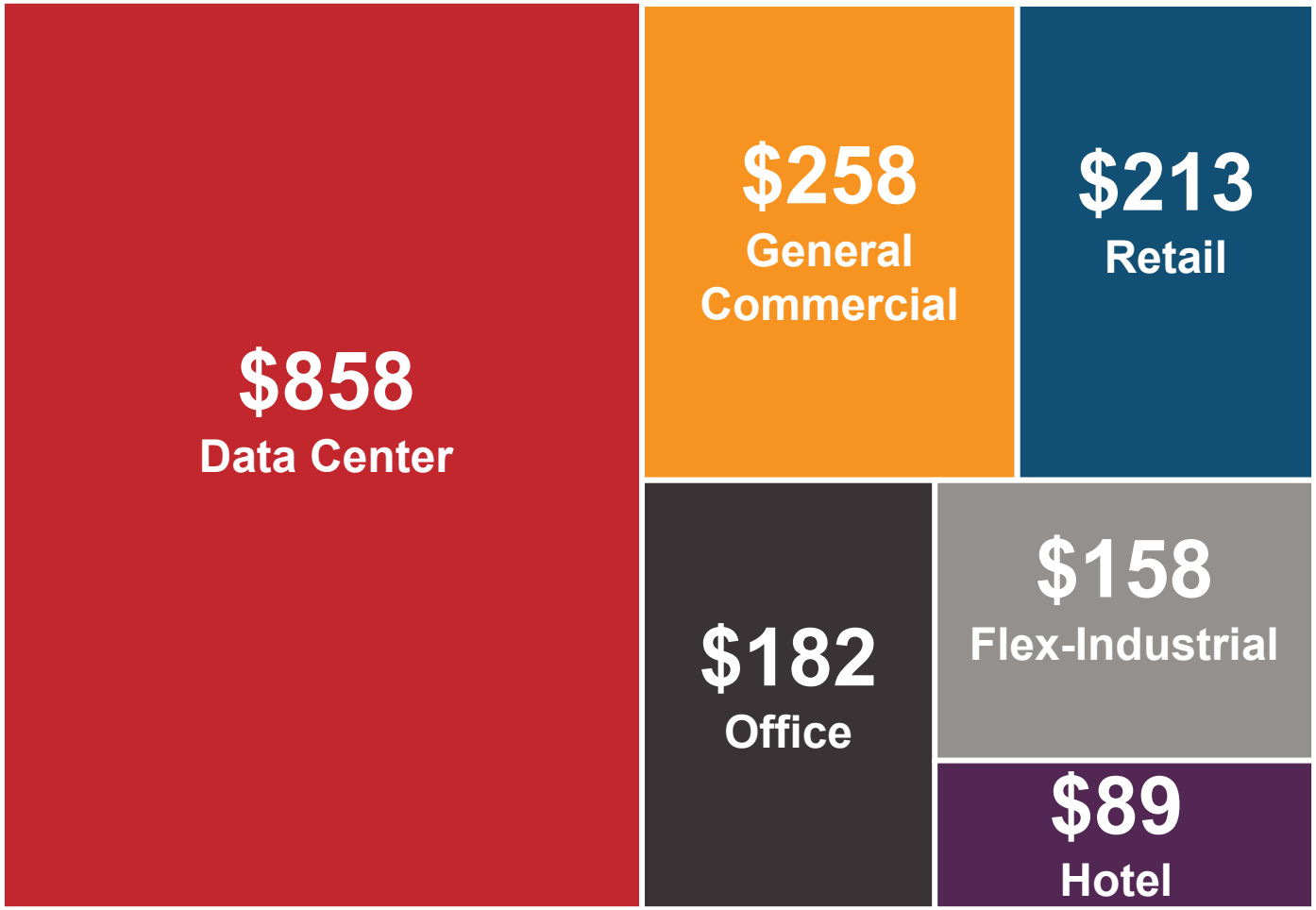
<1

Data centers generate 38% of the County's General Fund revenues on less than 3% of its land



Data center value per square foot is 3 times more than next highest use

Assessed Value per Square Foot



- In FY2012, Loudoun's tax rate was $1.285 per $100
- In FY2026, Loudoun's tax rate will be $0.805 per $100

That is a $0.48 per $100 tax reduction over 13 years

At Loudoun's averaged assessed value of $735,800, a homeowner saves about $3,531 a year in taxes.

Residential and Commercial Tax Base

2007

2024


DATA CENTERS | CONNECTIVITY | LUXURY | LIFESTYLE
InterGlobix
LAMBORGHINI LONG ISLAND RALLY
DENMARK EUROPE'S DIGITAL HAVEN
PLUS THE INVESTMENT TRENDS WATCH SPECIAL
A NEW PACESETTER IN ASHBURN
THE MAN BEHIND THE #1 DATA CENTER MARKET ON THE PLANET
BUDDY RIZER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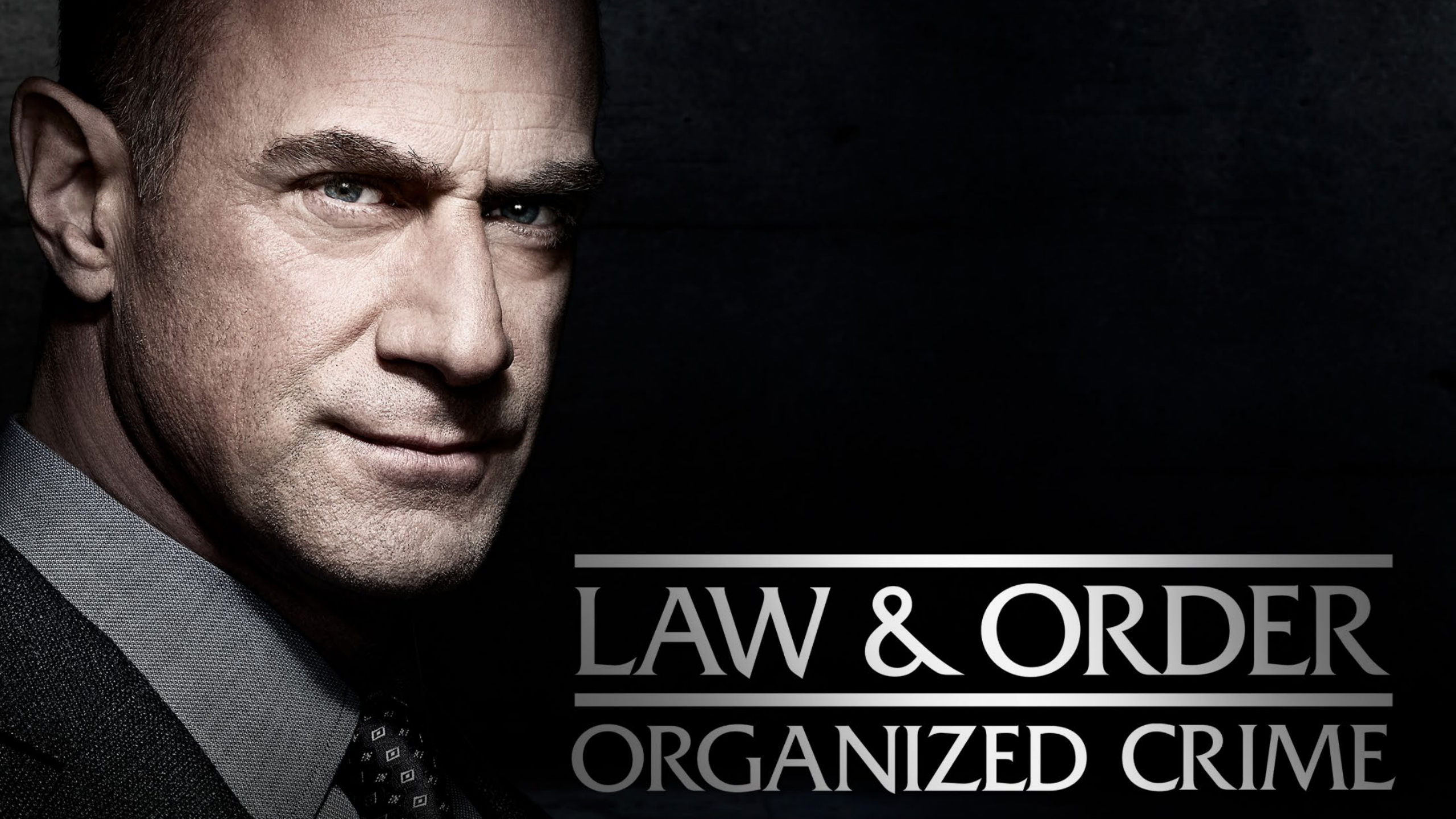
Means Business
Buddy Rizer, executive director, Loudoun County Department of Economic Development

CBS

cbsnews.com/news/loudoun-county-data-centers-virginia-technology/

PBS

matteroffact.tv/more-data-centers-spark-concerns-for-virginia-residents/


LAW & ORDER
ORGANIZED CRIME

Industry Snapshot

- Digital infrastructure = physical foundation for the internet, cloud, and AI
- 205 GW global data center capacity (55 GW active, 15 GW under construction, 135 GW in pipeline)
- Expected to triple or quadruple in 5–7 years
- Hyperscalers investing $215B+ in 2025 alone

AI AS THE GROWTH ENGINE

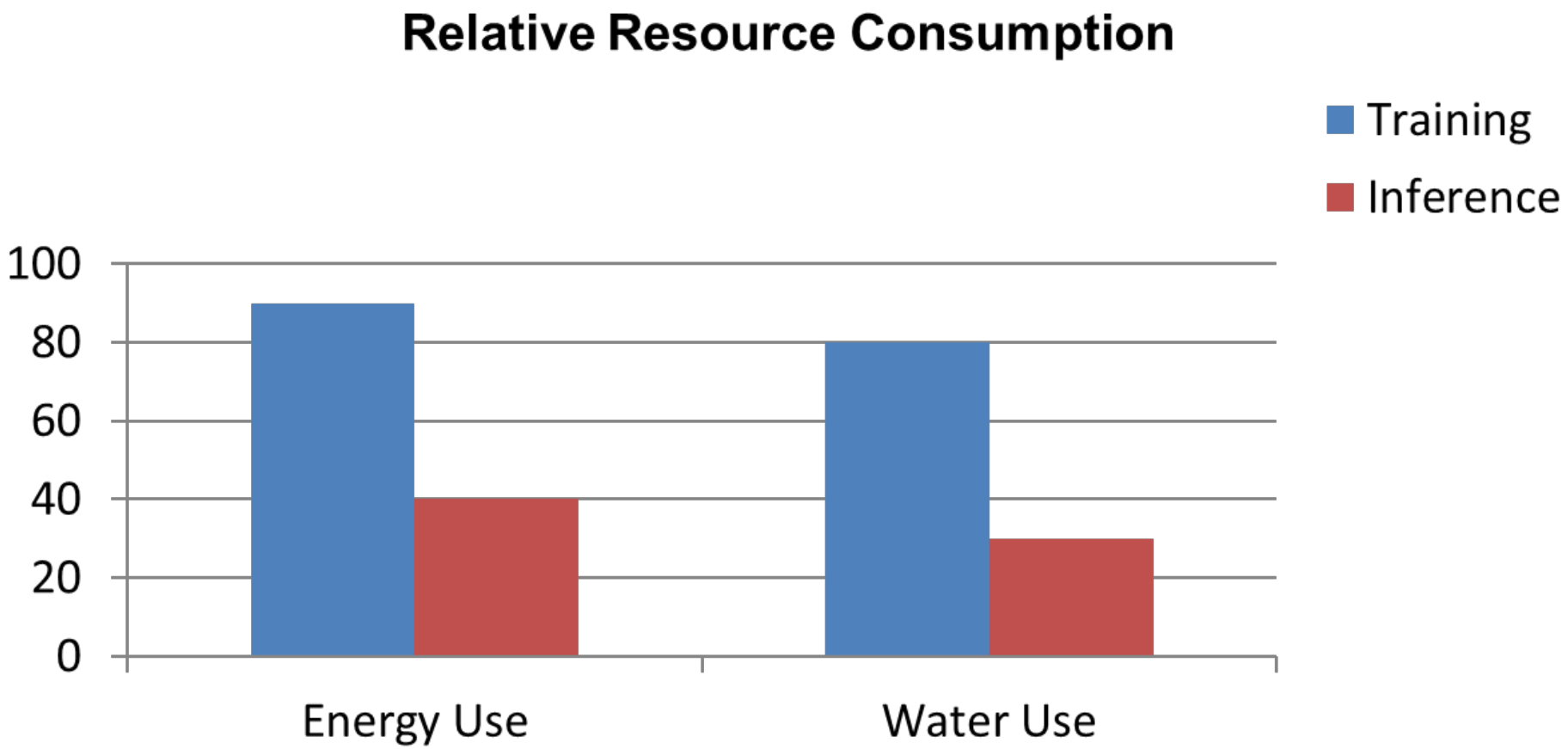
- AI model training = 90% of current data center power growth
- AI inference will become 90% of workloads by 2030
- Power demand surging: one AI training data center = power needs of a medium-sized city
- Edge computing growth driven by inference latency needs

Not All AI Data Centers are the Same

	Training AI Data Centers	Inference AI Data Centers
• **Purpose**	Build and refine models with massive data sets	Run trained models to deliver predictions in real time.
• **Hardware**	High-end GPUs/TPU's, extreme compute, cooling and power	Optimized chips for efficiency, lower power draw.
• **Focus**	Accuracy, iteration speed, and scale	Speed, scalability, and latency.

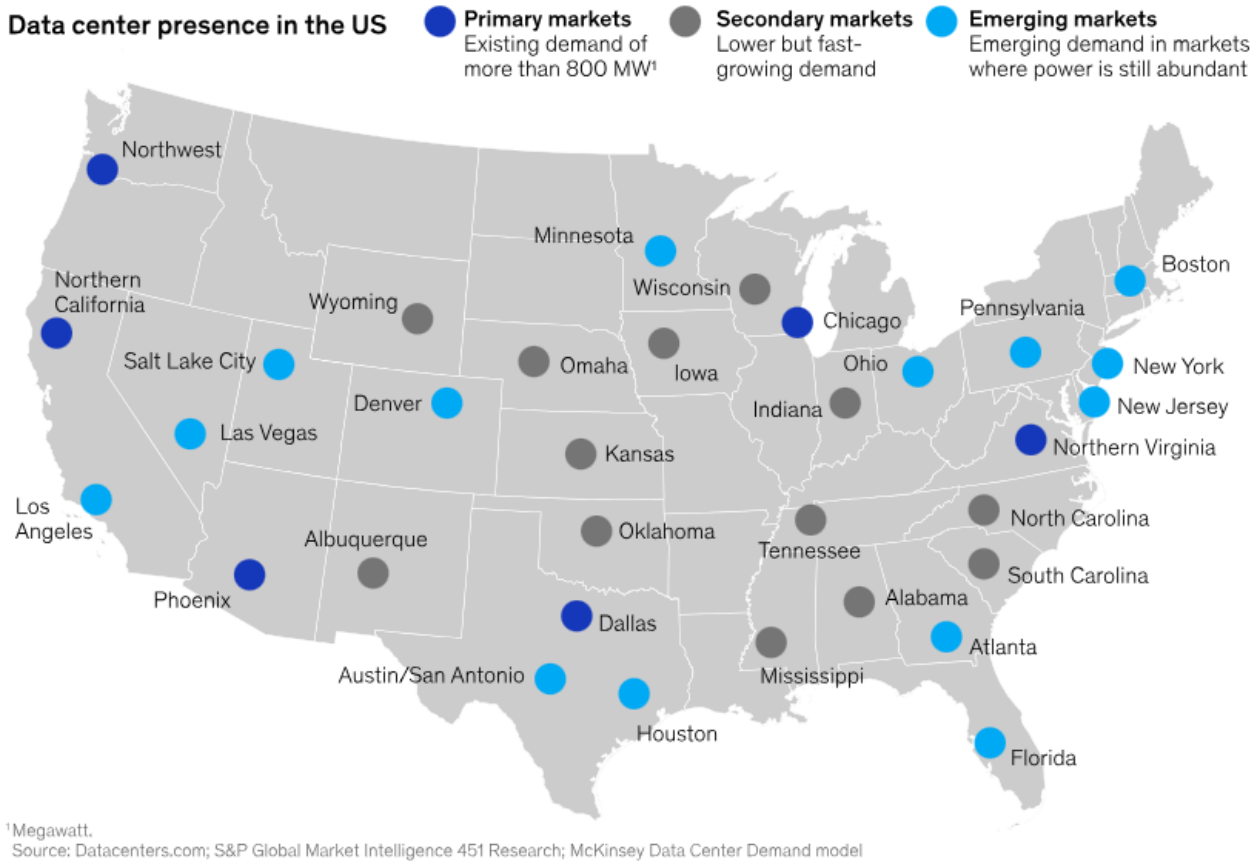
Training = Heavy Compute | Inference = Fast Response

Not All AI Data Centers are the Same



WORKLOADS RESHAPE GEOGRAPHY: TRAINING VS. INFERENCE

Data centers are emerging in more remote locations, where power is still abundant and grids less strained.



[1]Megawatt.
Source: Datacenters.com; S&P Global Market Intelligence 451 Research; McKinsey Data Center Demand model

The Three Ps – Industry Challenges

- **Power – Access and reliability remain top challenge**
- Perception – Community trust and visibility are increasingly critical
- Policy – Major policy changes adopted

Today, the demand for power **shapes where and when digital infrastructure is built.**

The Abilities of Power

- Availability
- Scalability
- Reliability
- Affordability
- Sustainability

The Three Ps – Industry Challenges

- Power – Access and reliability remain top challenge
- **Perception – Community trust and visibility are increasingly critical**
- Policy – Major policy changes adopted

Digital infrastructure industry members that are "of the community" share the community's values, participate in local events and invest in the well-being and development of the community.

SUSTAINABILITY

Get Off My Lawn ... You Crazy Data Centers!

CHRIS STOKEL-WALKER BUSINESS AUG 1, 2022 7:00 AM

Data Centers Are Facing a Climate Crisis

Companies are racing to cool down their servers as energy prices and temperatures soar. And th

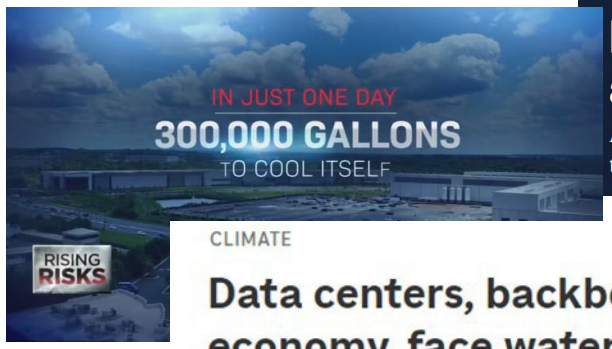
The staggering ecological impacts of computation and the cloud

VERIFY

What's all the data center noise about?

—

Neighbors say Northern Virginia data centers emit a noise they just can't tune out. We took to the streets and dove in to the science to figure out why.



Drought-stricken communities push back against data centers

As cash-strapped cities welcome Big Tech to build hundreds of million-dollar data centers in their backyards, critics question the environmental cost.

CLIMATE

Data centers, backbone of the digital economy, face water scarcity and climate risk

The Three Ps – Industry Challenges

- Power – Access and reliability remain top challenge
- Perception – Community trust and visibility are increasingly critical
- **Policy – Major policy changes adopted**

Policy Shifts Are Reshaping the Data Center Playbook

March 2025 Data Center Policy Changes

Major Policy Changes Adopted:

- No by-right zoning for data centers in any district.
- Data centers now require Special Exception (SPEX) meaning legislative approval is required in zoning districts permitting them.
- Grandfathering is allowed for:
  - Administrative applications submitted before Feb 12, 2025 that are 500+ feet from residential uses.
  - Legislative applications submitted before Feb 12, 2025 that are actively pursued without substantial changes.

What Qualifies as a Substantial Modification?

Triggers for SPEX or loss of grandfathered status:

- Floor area or height increases beyond zoning district limits.
- Reduced building setbacks below minimum requirements.
- Changes requiring legislative reconsideration or Planning Commission review.

Exceptions:

- Modifications requested by the Board, Planning Commission, or County staff during official review are not considered substantial.

Changes to Fast-Track Program for Data Centers

Key Update (2024):

- Board of Supervisors directed Department of Economic Development to update fast-track eligibility.
- Projects must align with the 2019 General Plan policies (must be a Core, Complementary, or Conditional Uses of the Place Type).

Impact:

- Due to CPAM/ZOAM Phase 1 adoption, data centers are no longer listed as Core, Complementary, or Conditional uses.
- Result: Data centers are no longer eligible for fast-track processing, even with prior zoning entitlements.

What's Coming in Phase 2 – CPAM & ZOAM

Focus Areas:

- Sustainability (energy, air, water, noise, light)
- Design & buffering standards
- Landscaping and building façade guidelines
- Accessory use regulations
- Exploring guidance for onsite power generation

Project Goals:

- Align General Plan policies and zoning standards
- Address community impacts
- Collaborate with stakeholders for industry-informed standards

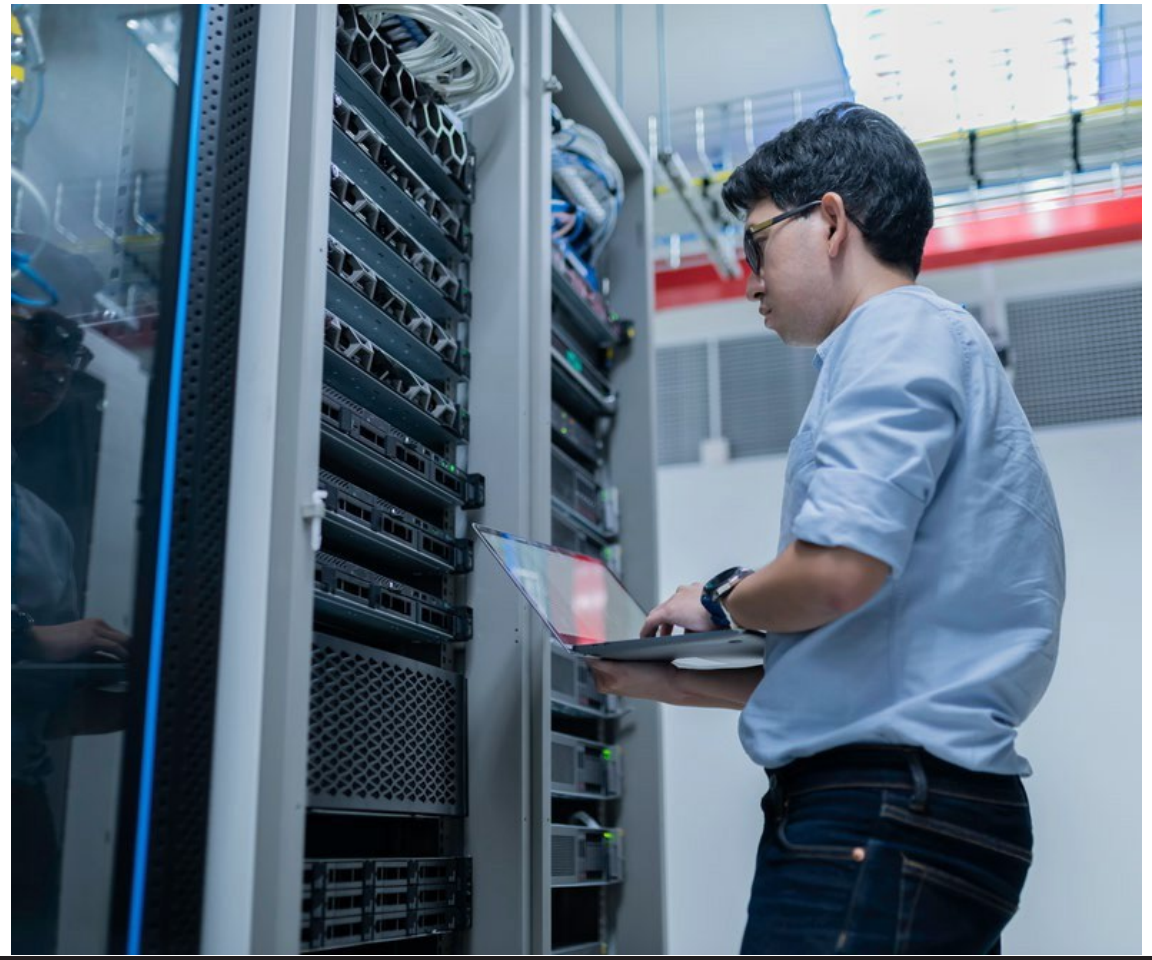
Phase 2 Continued – Planning and Process

Board Direction:

- Review 2019 General Plan inconsistencies (Chapters 2 & 5)
- Study national best practices and enabling legislation
- Evaluate additional mapping changes if directed

Next Steps:

- Public engagement
- Stakeholder collaboration
- Policy and zoning refinement through 2025



2025 General Assembly Activity – What Passed

HB2084 – Passed

- Directs SCC to evaluate if current utility rate classes (e.g., for data centers) are fair.
- May result in new rate class (GS-5) for high-load users (25MW+).

Dominion's Proposals:

- GS-5 rate class for ~140 customers by 2027.
- Stranded cost mitigation through minimum demand charges.
- Engineering study queue formalized (ELOA/CLOA process).

2025 General Assembly – What Did Not Pass

HB1601/SB1449 – Rejected (Governor Amendment Offered):

- Would have required mandatory site impact studies (noise, water, land, etc.) for new High Energy Use Facilities.
- Rejected by General Assembly; Governor decision pending (May 2, 2025).

Sales/Use Tax Exemption Sunset Extension – Rejected:

- Proposal to extend exemption for data centers was rejected.
- Joint Subcommittee on Tax Policy will now study long-term impacts of the tax benefit.

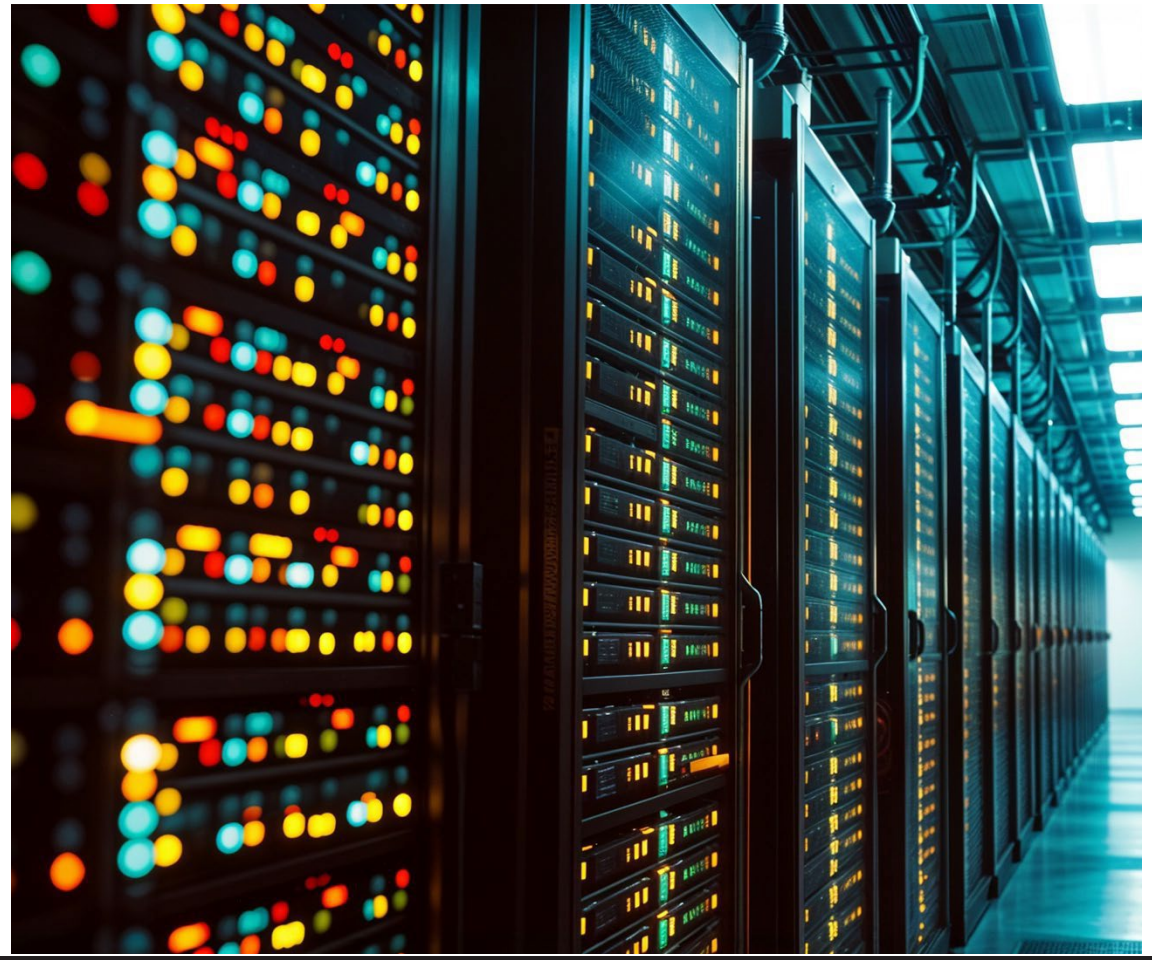
Summary – Data Center Regulatory Landscape

Biggest Shifts:

- Data centers must go through SPEX process.
- Fast-track eligibility eliminated.
- Phase 2 will define stricter design and performance standards.
- State regulatory changes may impact rates, classifications, and tax advantages.

DED Role:

- Serve as liaison and resource for navigating regulatory updates.
- Support ongoing business operations and project planning.
- Advocate for balanced, forward-looking policies.



Looking Ahead

- Sustainability and "Greener" Data Centers
  - Sustainable design, renewable energy integration, efficient cooling, and carbon-neutral operations.
  - Innovations like liquid cooling, immersion cooling, and green building certifications (e.g., LEED, Green Globes).

Looking Ahead

- AI-Optimized Data Centers
  - Greater demand for AI-specific infrastructure, particularly for training large models. This will drive power density requirements far beyond traditional cloud data centers.
  - Enhanced use of machine learning for optimizing power usage, predictive maintenance, and efficient load balancing.

Looking Ahead

- Edge Computing Expansion
  - Surge in edge data centers to support IoT devices, 5G networks, and low-latency applications.
  - Decentralization of data processing closer to end-users to reduce latency and bandwidth costs.
- Hyperscale Growth
  - Continued expansion of hyperscale data centers, driven by cloud providers like AWS, Google, Meta, Oracle, and Microsoft.
  - Focus on multi-megawatt deployments in strategic regions with reliable power and connectivity.

Looking Ahead

- International Expansion and Emerging Markets
  - New US markets emerging as companies “chase power”
  - Data center growth expanding into international markets like Southeast Asia, Africa, and South America.
  - Localized data storage to comply with national data sovereignty laws.

Looking Ahead

- Energy Autonomy and Microgrids
  - Integration of microgrids for energy independence and resilience.
  - Use of onsite renewable energy generation (solar, wind) coupled with battery storage solutions.
- Integration with Smart Grids
  - Collaboration with smart grid technologies to optimize power distribution and manage demand during peak loads.
  - Enhanced energy efficiency through grid-connected demand-response programs.

If we can help you in any way, please call Buddy Rizer at 703-777-0592 or email Buddy.Rizer@Loudoun.gov

Learn more here