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Association of Corporate Counsel ("ACC") Houston Energy Practice Group

Powering the Future: What In-House Counsel Need to Know About Data Centers and AI

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Today's Speakers

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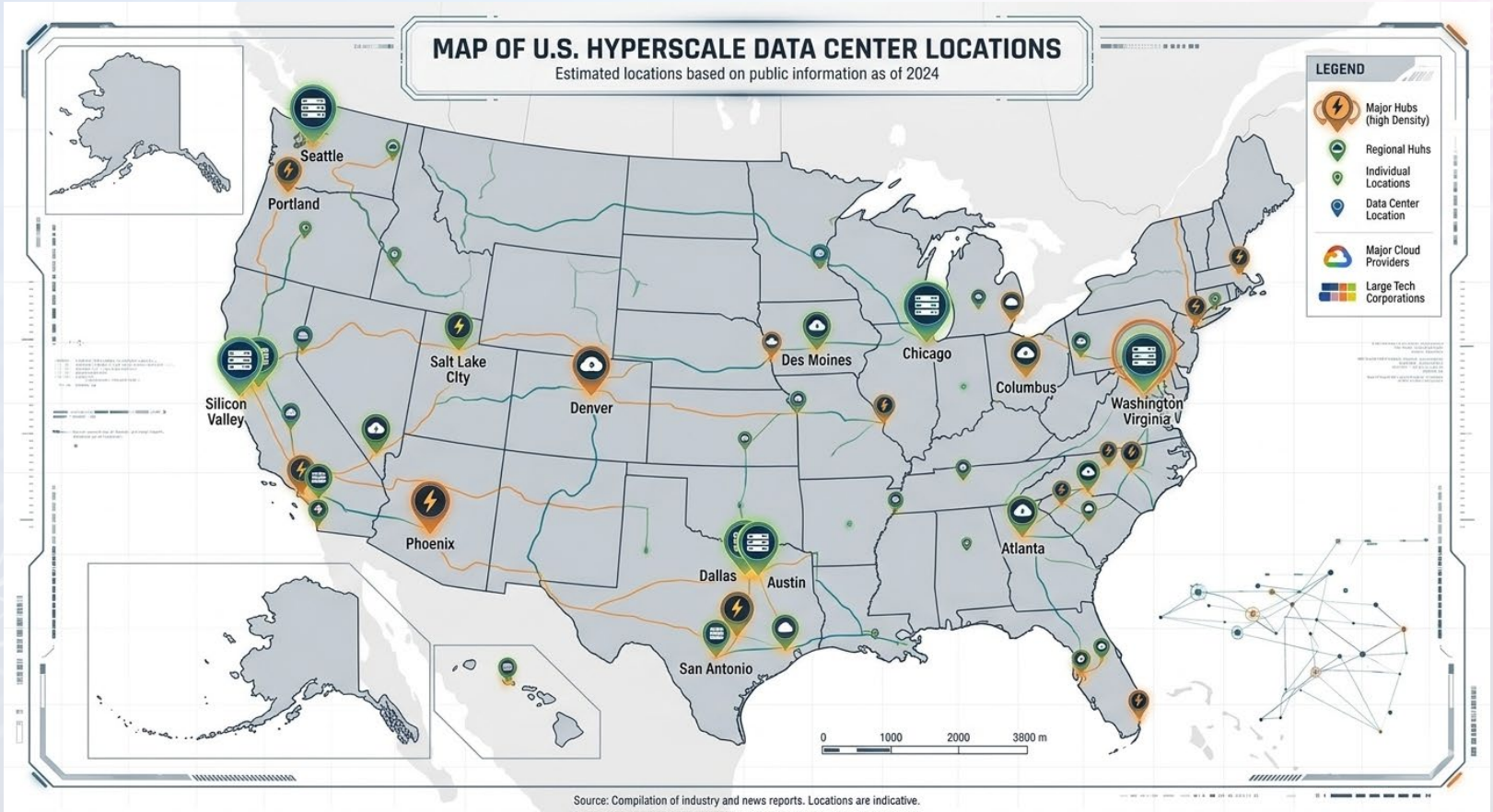
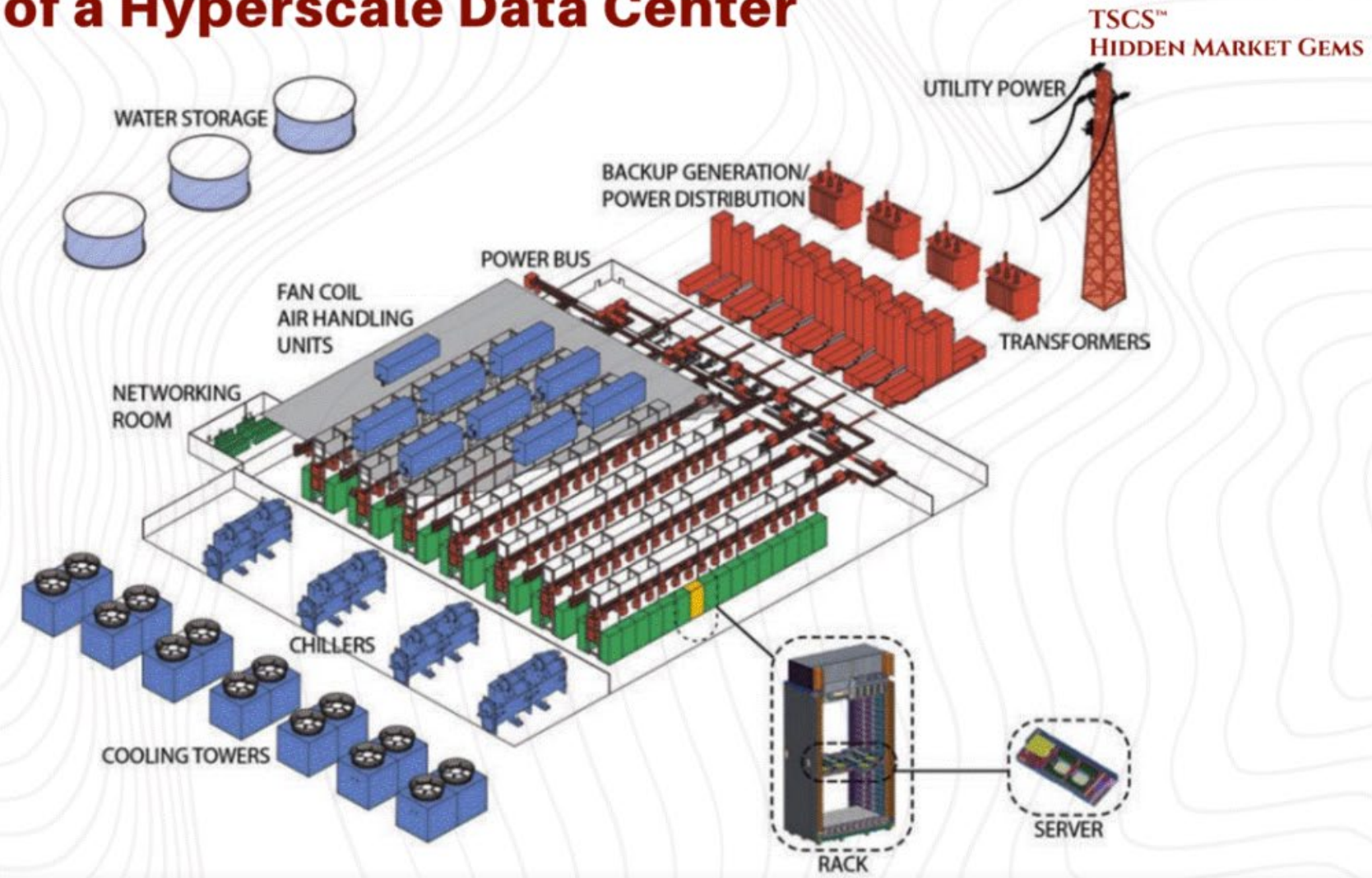
Data Centers: The Basics

- Types:
  - Hyperscale (AI-focused, warehouse-sized)
  - Enterprise (private)
  - Colocation (shared rental)
- ~4,000 data centers nationwide; a third in Virginia, Texas, and California
- A typical AI hyperscale facility uses as much electricity as 100,000 households
- Electricity sources: 40% natural gas, 24% renewables, 20% nuclear, 15% coal
- AI requires specialized chips (NVIDIA ~80% market share); each draws 700–1,000 watts continuously

Current Data Center Locations



Anatomy of a Hyperscale Data Center



The Cost Paradox: Cheaper AI, Bigger Bills

- AI is billed per “token” (~3/4 of a word); token prices have fallen 99.7% since 2022
- Despite cheaper tokens, enterprise AI bills have tripled — the “cost paradox”
- Cause: AI agents now trigger 10–20x more computations per task
- Running AI (inference) accounts for ~85% of total AI energy spending

Energy Demands: The Grid Impact

- 60% of data center electricity powers servers; 30–40% powers cooling systems
- ERCOT tracking 226 GW of interconnection requests; 75% from data centers
- Texas faces 51 GW of new demand by 2030 — 50 years of growth in one planning cycle
- Data centers account for ~55% of all demand growth in U.S. utility forecasts

Water and Natural Resources

- Most common method (evaporative cooling): 80% of water is permanently lost to evaporation
- A single facility can consume 5 million gallons/day; 2/3 of new sites are in water-stressed areas
- Texas data center water use could grow from 0.4% to 2.7% of state supply by 2030
- Texas SB 6 (2025): facilities ≥75 MW must accept mandatory curtailment during grid emergencies

Innovations Reducing the Burden

- Liquid/immersion: cooling cuts cooling energy 30–40% and uses near-zero water
- Demand flexibility: NERC reduced ERCOT's 2026 peak forecast by 3.7 GW due to curtailable data centers
- Small Modular Reactors (Texas HB 14; $900M DOE funding) — expected within the decade
- On-site generation: 46 planned facilities (56 GW) will bypass the grid entirely
- AI itself is helping: Google's DeepMind reduced cooling energy by 30–40%

Optimization Science: Doing More with Less

- Software optimization
  - Reduces AI computations by up to 2.1x (inference) and 1.9x (training)
- Translation:
  - ~52% less electricity per AI query and ~47% less per training run
- These gains compound with hardware and cooling improvements
- Takeaway:
  - expect AI demand growth
  - efficiency offsets will moderate grid burden

Who's at the Table: Stakeholder Incentives in the Data Center Space

Stakeholder	Reduce Costs	Reduce Water Use	Reduce Grid Burden	Increase Efficiency	Increase Energy Output
Hardware Providers (NVIDIA, Google, AMD)	**Sell more chips by improving perf/watt**	Indirect; design liquid-cooled chips	Indirect; efficiency attracts buyers	Core competitive differentiator	Not a priority
Data Center Operators (Hyperscalers, Colocation)	Lower opex = higher margins	Avoid permitting risk and public opposition	Faster interconnection and siting	Lower PUE = more compute per MW	**Securing power is #1 bottleneck**
Enterprise AI Consumers	AI bills tripling; inference cost is existential	Low direct priority	Indirect; want reliable service	**Fewer tokens per task = lower bills**	Indirect; want available capacity
Energy Utilities / Grid Operators (ERCOT, PJM)	Keep rates affordable for all ratepayers	Moderate; power generation uses water	**Core mission; grid reliability is paramount**	**Demand flexibility eases planning**	Primary mandate; build generation & transmission
Water Utilities & Local Governments	Protect taxpayers from infrastructure costs	**Top priority; protect local supply**	Moderate; tied to community resilience	Prefer closed-loop cooling technologies	Low direct priority
Regulators & Policymakers	Protect consumer rates; equitable cost allocation	Enacting water efficiency standards	Mandate curtailment (e.g., TX SB 6)	Setting PUE and reporting mandates	Incentivizing SMRs, renewables, gas

Overview of Issues for Data Center Development

- Property Location and Suitability for Purpose
- Zoning
- Electric Power Supply
- Water Supply
- Public/Political Support or Opposition

Property Location and Suitability for Purpose

- Purpose of Data Center: AI vs. General Data/Information Processing
- Property Size
  - Ease of Access – Construction and Post-Construction
  - Security Buffer Zone
- Grid Access
- Potential for Inside-the-Fence Power and Water Supply
- Latency

Zoning

- Zoning vs. Rezoning: Timetable for Proceedings
- Agriculture/Forestation Issues

Electric Power Supply

- Grid Access
- Inside-the-Fence [“Bring Your Own Power”] Options
  - Fuel Source and Supply
  - Fuel Cells
  - Solar Supplement
  - Nuclear??

Water Supply

- Reliance on Local Public Water Supply
- Reliance on Property-Based Water Supply

Public/Political Support or Opposition

- Impact of Local Laws or Ordinances
- Impact of State Laws or Policies
- Opportunities for Public Support or Opposition
  - Zoning Hearings
  - Other Hearings

Questions?

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