Data Centers:

Powering the Internet and our Modern Economy

DATA
CENTER
COALITION

Chris Kimm

Career Timeline

- **Data Center Coalition (2020-2025)**
  Chair (2022–2025)
  Vice Chair (2021–2022)
  Board Member (2020-2021)

- **Equinix (2018–2025)**
  World's largest public data center REIT
  Today 280 data centers | 77 markets | 36 countries

- **WorldCom → Verizon (2001–2018)**
  UUNET integrated into WorldCom / MCI / and acquired by Verizon.

- **UUNET (1997-2001)**
  First commercial Internet Service Provider
  Major presence in Loudoun County near AOL

- **Kinko's (1991-1997)**
  Kinko's was later sold to FedEx and surviving retail stores now do business as FedEx Office.

Leadership Experiences

- Equinix: Global Customer Care & Experience – 10,000 customers (2023-2025)

- Equinix: Data Center Operations in the Americas - 100+ sites, 7 countries (2018-2023)

- Verizon: Technical Support for 5M+consumer and small business customers (2015-2018)

- Verizon: End-to-end post-acquisition operational support for 32,000 enterprise customers globally

- Verizon: Field Operations across EMEA & APAC covering 13 time zones

- Kinko's: Registered kinkos.com (1993), led project to launch first Kinko's web site concurrent with a Super Bowl ad (1996) and an offer of internet access as a retail store service.

Data Center Coalition:

- **The Voice** of the data center sector

- **Advocates** for a business climate, policies, and investments that support the growth and competitiveness of the industry

- **Information Resource** for elected officials, candidates, community leaders, business partners and other stakeholders

2 Main Types of Data Centers

Self-Perform/Enterprise

Business owns/controls servers and peripherals, may own facility

Multitenant and Build to Suit

Facility owner leases to one or multiple tenants

And a Spectrum of Data Center Designs

- Where and When Built & Workloads to be Supported Drive Designs
    - o Power density and total site power needs have grown
    - o High Performance Computing (including AI Training) Sites Currently Most Intense
    - o All Data Center Types and Designs Represented in our Area

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Number of People/Devices Drives Data Center Demand

McKinsey: U.S. demand is expected to reach **80 gigawatts (GW) by 2030**, up from 25 GW in 2024.

> "The data center industry has experienced explosive growth over the past decade, driven by ever-increasing demand for cloud services and the expanding use of web-enabled devices globally. […] **In the next five years, consumers and businesses will generate twice as much data as all the data created over the past 10 years.**"
>
> -JLL, *Data Centers 2024 Global Outlook*

More People Are Getting Online and Connecting More Devices to the Internet

- Approximately 5.4 billion people - or 67% of the global population - are online today. This represents an **increase of 45% since 2018**. 2.6 billion people are not yet connected to the internet.

- On average, U.S. households have a total of **21 connected devices**.

Sources: McKinsey, "How data centers and the energy sector can sate AI's hunger for power", September 17, 2024, https://www.mckinsey.com/industries/private-capital/our-insights/how-data-centers-and-the-energy-sector-can-sate-ais-hunger-for-power
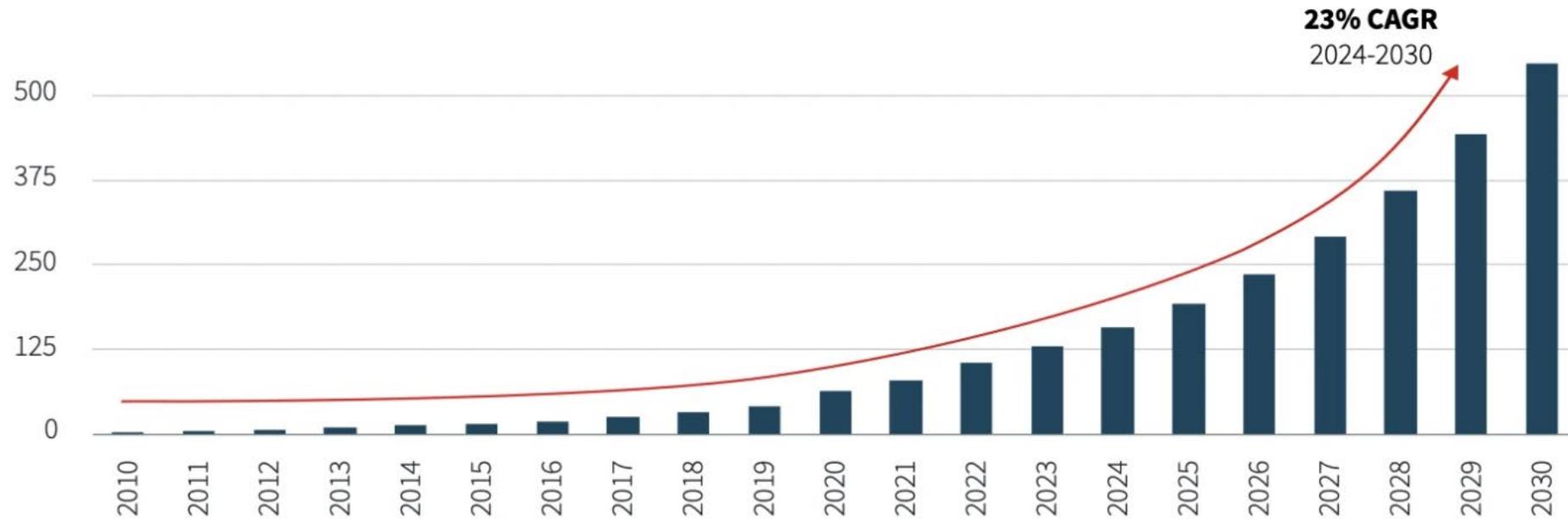JLL, Data Centers 2024 Global Outlook, https://www.us.jll.com/content/dam/jll-com/documents/pdf/research/global/jll-data-center-outlook-global-2024.pdf
International Telecommunication Union, https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx
Deloitte "Shiny new devices may be bringing joy, but who's protecting consumer data?", January 23, 2023 https://www2.deloitte.com/us/en/insights/industry/technology/consumer-data-privacy.html
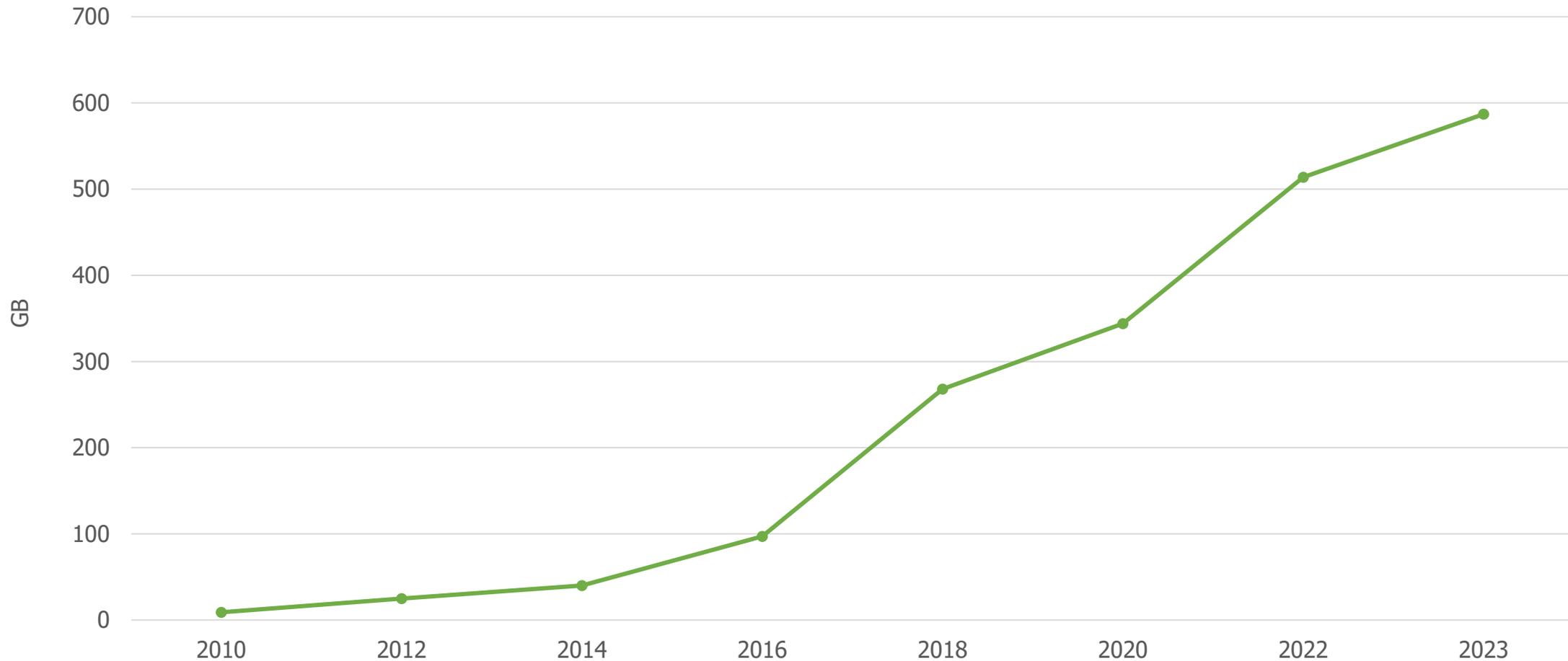
What Drives Data Center Demand?

Global data created annually in zettabytes

23% CAGR
2024-2030

Source: JLL Research, IDC

What Drives Data Center Demand?

Average Monthly Household Broadband Consumption

New Products/Experiences/Applications Drive Demand

- Cloud
- Business Apps
- Generative AI
- Machine Learning
- Entertainment and Gaming
- Internet of Things/Connected Devices

- Virtual and Augmented Reality
- eCommerce
- Streaming Video
- Payment Processing
- Online Learning
- Connected Vehicles and Autonomous Driving
- Innovation!

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U.S. Data Center Industry

Jobs

- **603,900 direct jobs** in 2023—51% increase from 2017

- **4.7 million in total employment** in 2023—60% increase from 2017

- **$404 billion in total labor income** in 2023—93% increase from 2017

GDP

- **$3.5 trillion in GDP impact** between 2017-2023
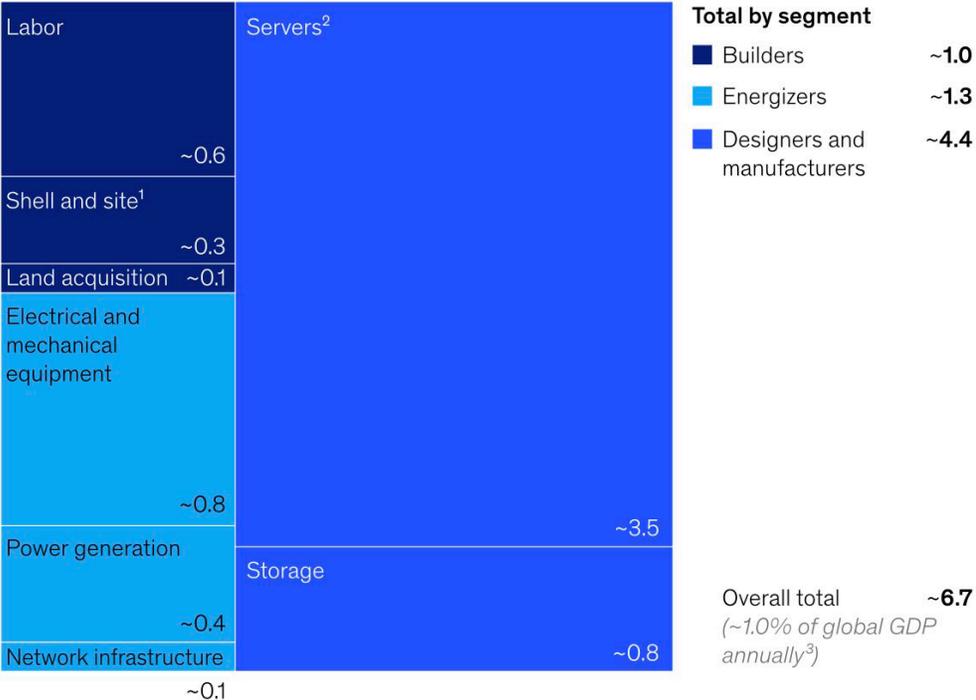
Taxes – Federal, State, and Local

- **$162.7 billion in total impact** in 2023 - 146% increase from 2017

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Data Centers Trends

$6.7 trillion of capital expenditure will be cumulatively deployed in data center infrastructure through 2030.

Global distribution of capital investments across data center value chain segments, 2025–30, $ trillion

Labor ~0.6	**Servers**[2]	**Total by segment**
Shell and site[1] ~0.3		■ Builders ~1.0
Land acquisition ~0.1		■ Energizers ~1.3
Electrical and mechanical equipment ~0.8	~3.5	■ Designers and manufacturers ~4.4
Power generation ~0.4	**Storage** ~0.8	Overall total ~6.7 *(~1.0% of global GDP annually[3])*
Network infrastructure ~0.1		

[1]Includes mechanical, electrical, and plumbing.
[2]Including graphics processing units (GPUs) and central processing units (CPUs).
[3]Global GDP: $106 trillion (2023).
Source: Goldman Sachs; S&P Capital IQ; McKinsey Data Center CAPEX TAM & Demand model; analyst reports; expert interviews

McKinsey & Company
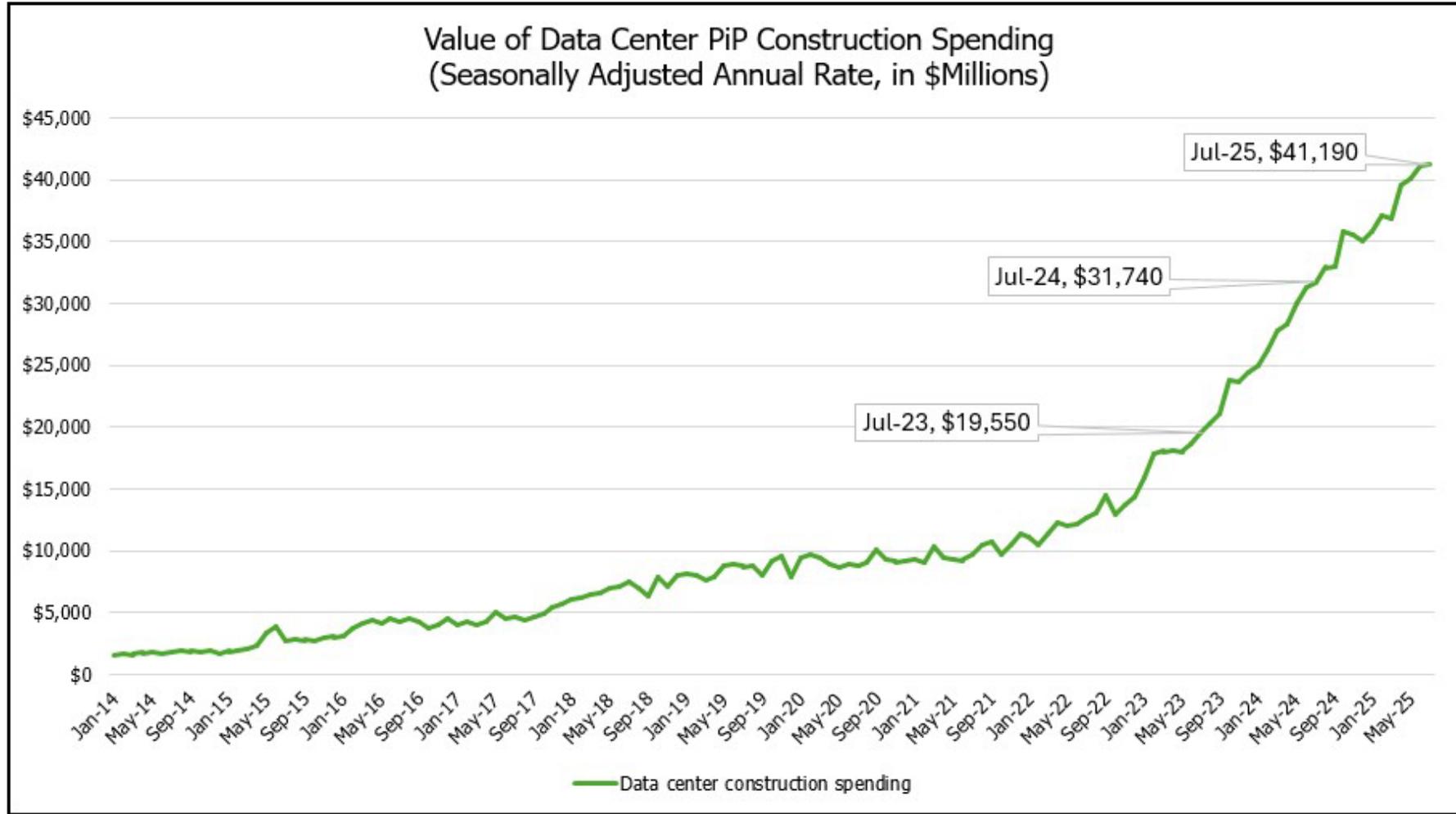
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Data Center Basics

- Building Shell
- Interior Space
- Security
  - Exterior
  - Interior
  - Cyber
- Servers
- Fiber/Networking Connectivity
- Reliable Power 24/7
- HVAC/Cooling

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Key Siting Considerations Include

- Time to Market
- Access to Fiber/Connectivity
- Access to Water for Industrial Purposes
- Access to Clean, Reliable, Affordable Energy
- Climate and Risk of Natural Disaster
- Land Availability, Suitability for Construction and Cost
- Tax and Regulatory Climate
- Ownership/Occupancy Costs
- Access to Skilled Construction and Technology Workforce

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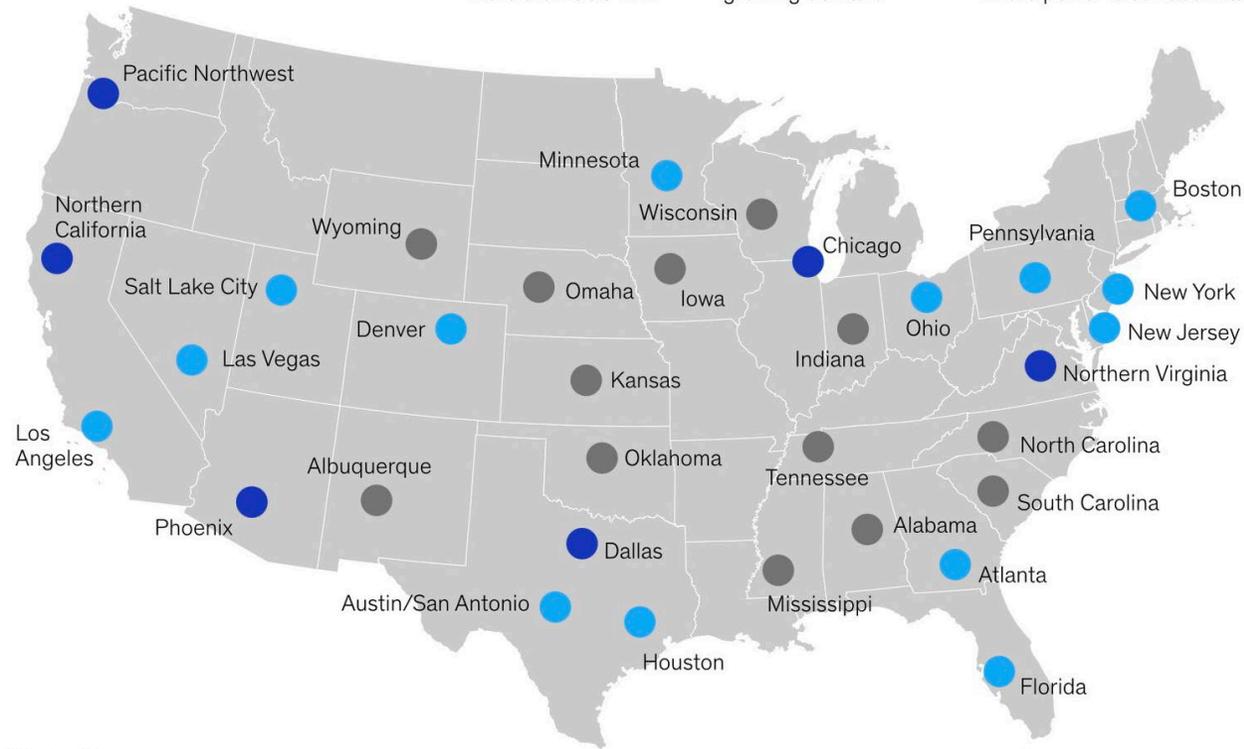
Data Center Trends

Value of Data Center PiP Construction Spending
(Seasonally Adjusted Annual Rate, in $Millions)

Jul-25, $41,190
Jul-24, $31,740
Jul-23, $19,550

— Data center construction spending

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U.S. Data Centers Markets

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

Data center presence in the continental US

- **Primary markets** — Existing demand of more than 800 MW[1]
- **Secondary markets** — Lower but fast-growing demand
- **Emerging markets** — Emerging demand in markets where power is still abundant

Pacific Northwest
Minnesota
Boston
Northern California
Wyoming
Wisconsin
Pennsylvania
Chicago
Salt Lake City
Omaha
Iowa
New York
Denver
Ohio
New Jersey
Las Vegas
Indiana
Northern Virginia
Kansas
Los Angeles
Albuquerque
Oklahoma
North Carolina
Tennessee
South Carolina
Phoenix
Alabama
Dallas
Atlanta
Austin/San Antonio
Mississippi
Houston
Florida

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

McKinsey & Company

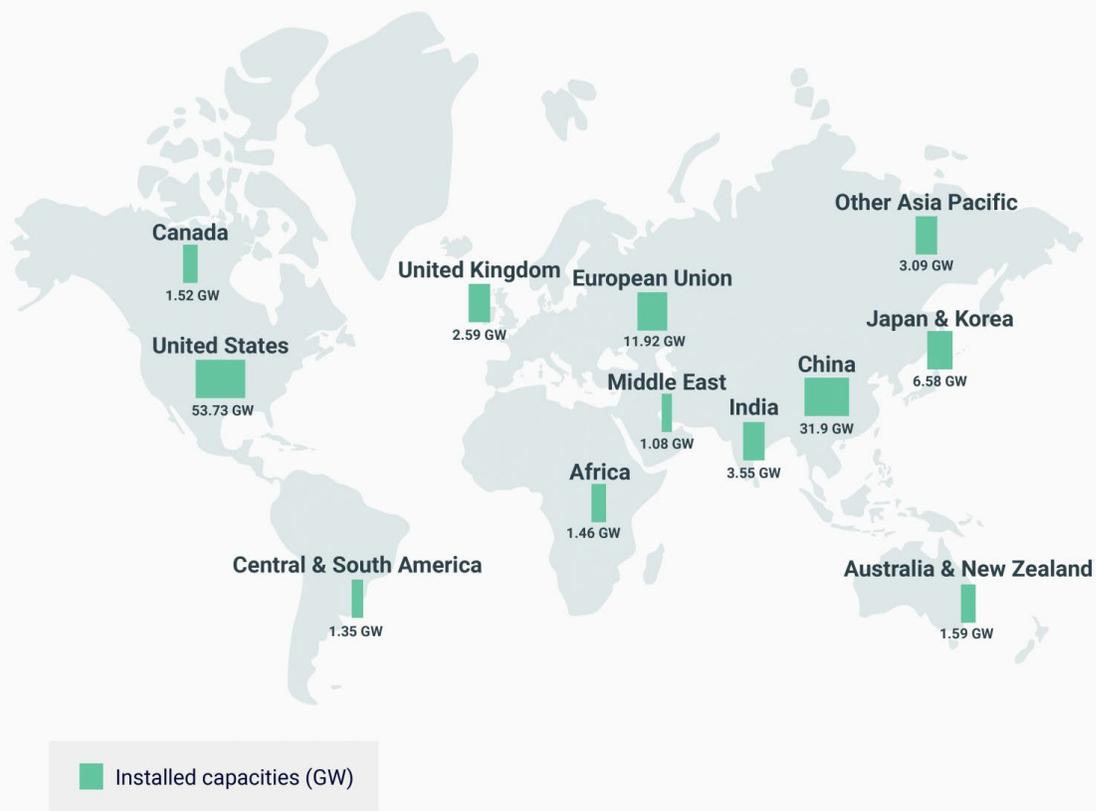**Competition for Prime Sites is Now National (& International)**

More companies are pursuing "bring your own power" solutions"

Sometimes called on site generation or referred to as "micro grids."

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Global Data Center Capacity

According to a New Energy Consult LinkedIn Post:

- The US and China dominate global data centers accounting for 70% of total installed capacity worldwide.

- **The United States is the largest single market with around 54 GW; 44% of global installed capacity.**

- The US is followed by China with 31.9 GW equivalent to 26% of global installed capacity.

- Europe is a strong hub with 12 GW.

- The Middle East lags behind with 1.08 GW but growth opportunities exist.

Global Data Center Markets (By Power Capacity)

Top Markets by Operational IT Load

Legend: Americas, APAC, EMEA
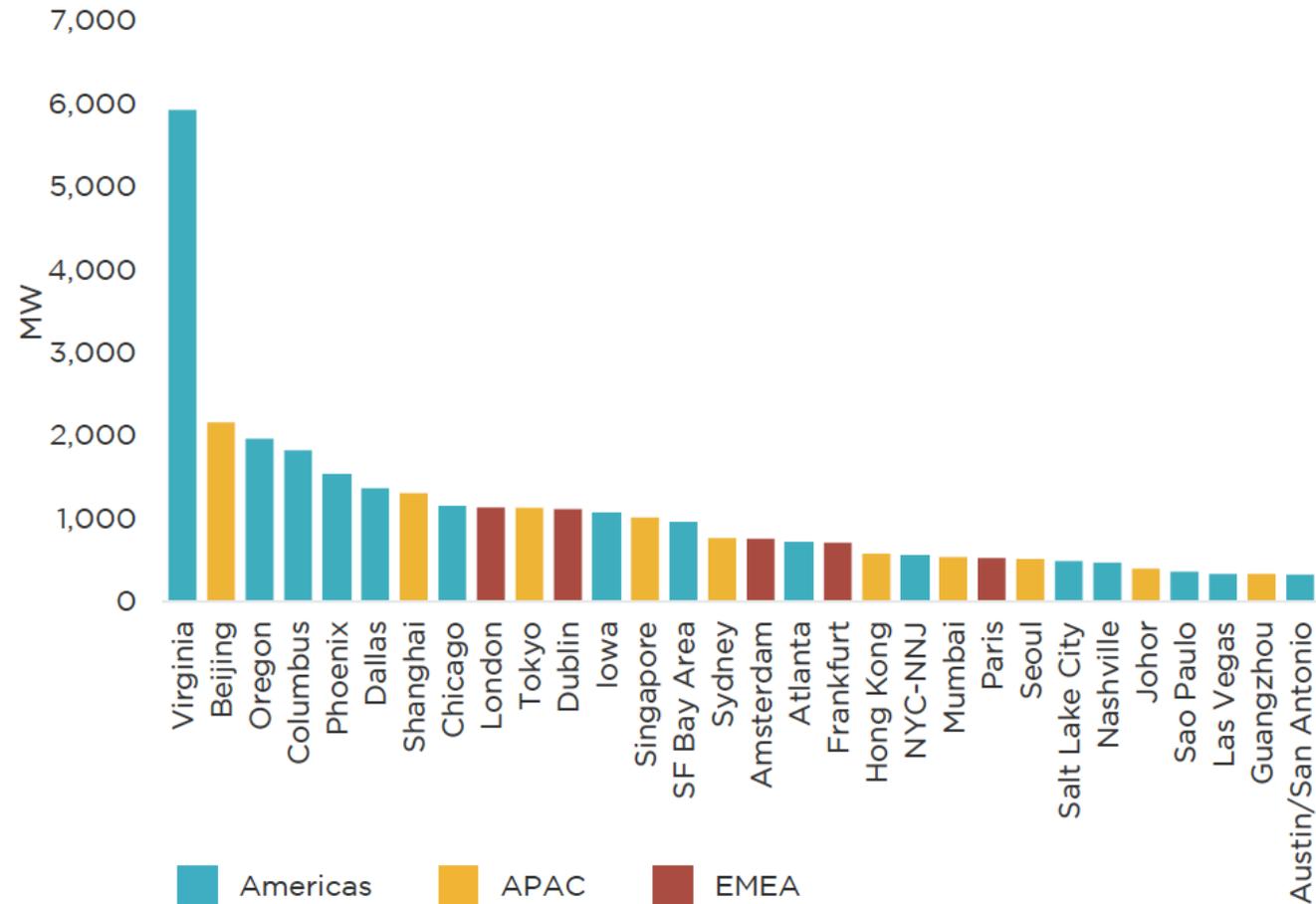
Source: Cushman & Wakefield Research, datacenterHawk, DC Byte

Why Data Centers?

- Significant driver of our region's economy.

- Enable Digital Infrastructure that supports platforms, industries, and applications individuals and organizations rely on.

- Represent huge capital investments.

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Why Data Centers?

- Generation of substantial tax revenue.

- Build and support larger ecosystems of suppliers, service providers, and other sectors of the economy.
  - **Each direct job in the data center industry supports more than six additional jobs**

Why Data Centers?

- Data centers are playing a leading role in advancing clean energy.

- Many data center companies maintain strong clean energy, sustainability, and carbon reduction goals.

- In 2024 alone, data center companies were responsible for half of all corporate renewable energy procurement in the U.S.