McKinsey & Company

# *The Global Race to Power AI and Manufacturing is Accelerating in 2026*

*What the Latest Data Tells Us About Affordability and America's Competitive Position*

NASEO
National Association of State Energy Officials

# US load growth is back: 3 kinds of questions we hear most often

## Is US power demand growth real?

- What are the sources of demand?
- Is AI data center demand growth a bubble?

## Where will the power come from?

- What technologies will supply the power required?
- What does this mean for power market structures?
- What does this mean for utilities and developers?

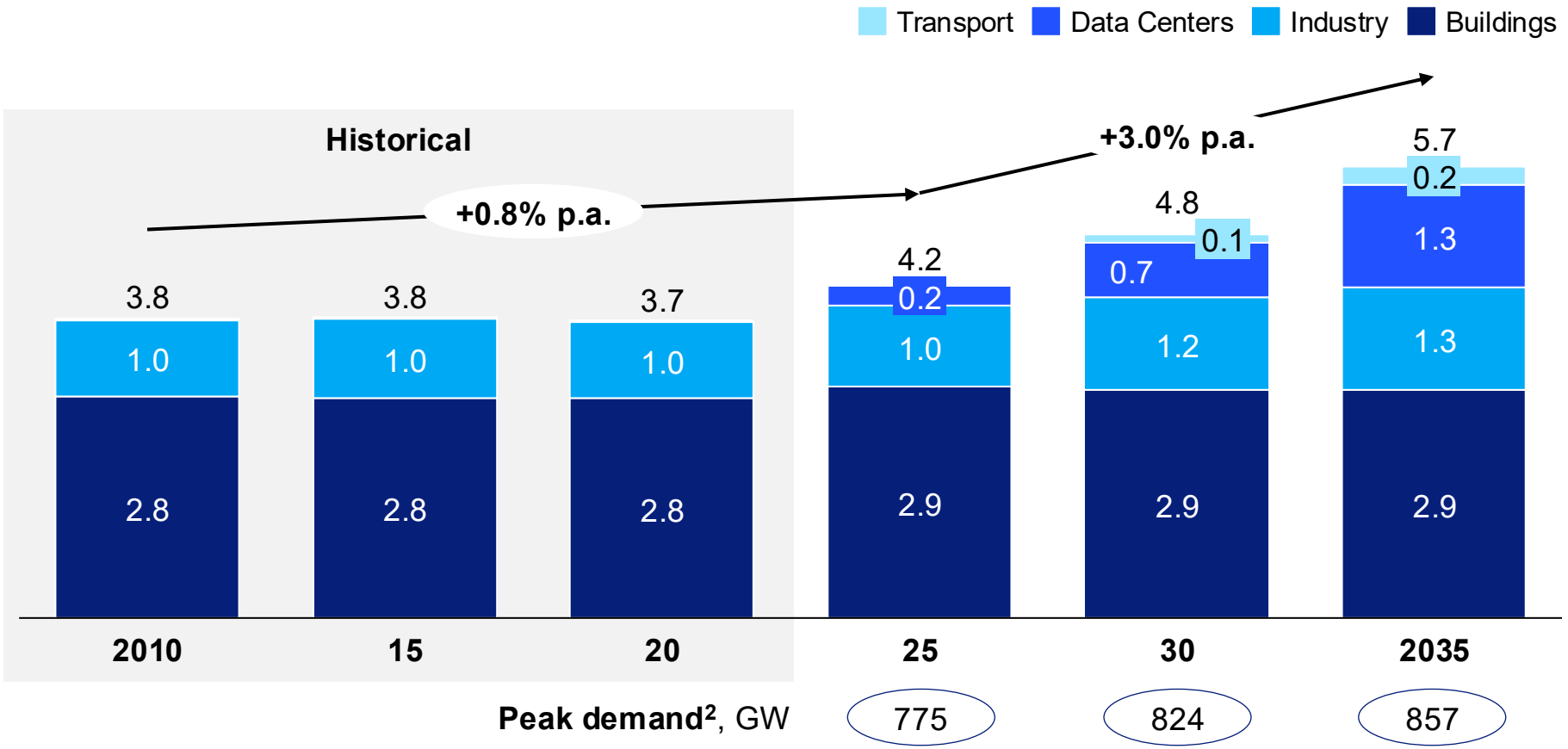
## Who pays? Who wins?

- What is the impact on affordability?
- What are investor expectations of utilities?

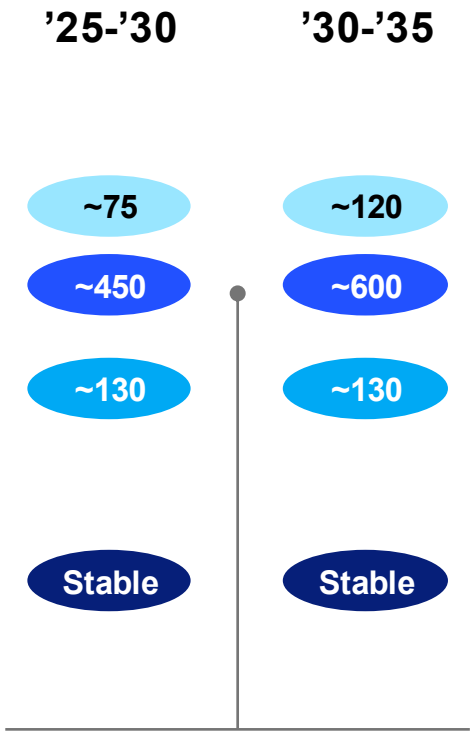
# Demand: US power demand is growing for the first time in 20 years, driven by data centers

Continued Momentum

**US Power Demand by sector[1], '000s TWh**




**Growth, TWh**

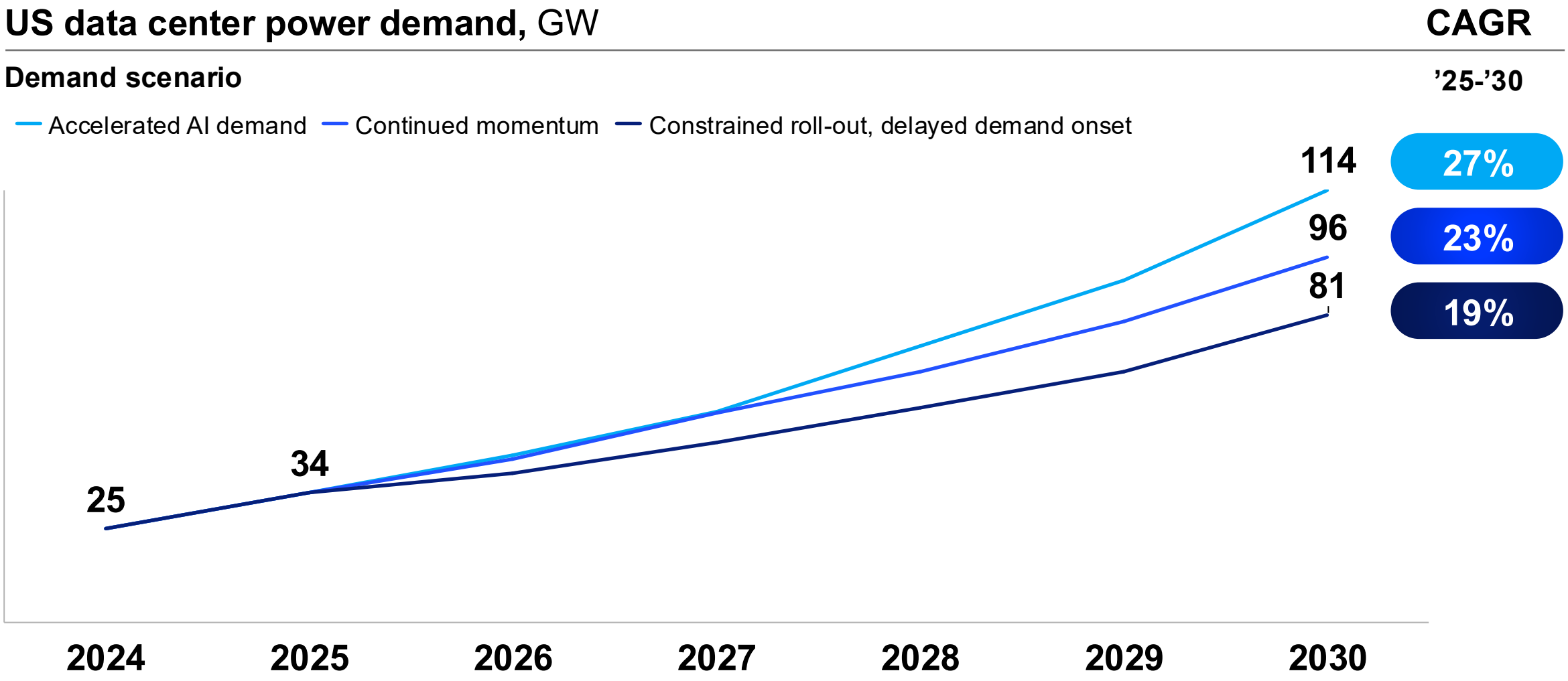



~70% of demand growth is coming from data centers

1. Excluding T&D load and storage losses
2. Non-coincidental net peak demand, equivalent to gross peak demand less DG generation. Only an estimation.

Source: McKinsey Energy Solutions

# Demand: US data center demand growth is projected to grow 19-27% annually through 2030



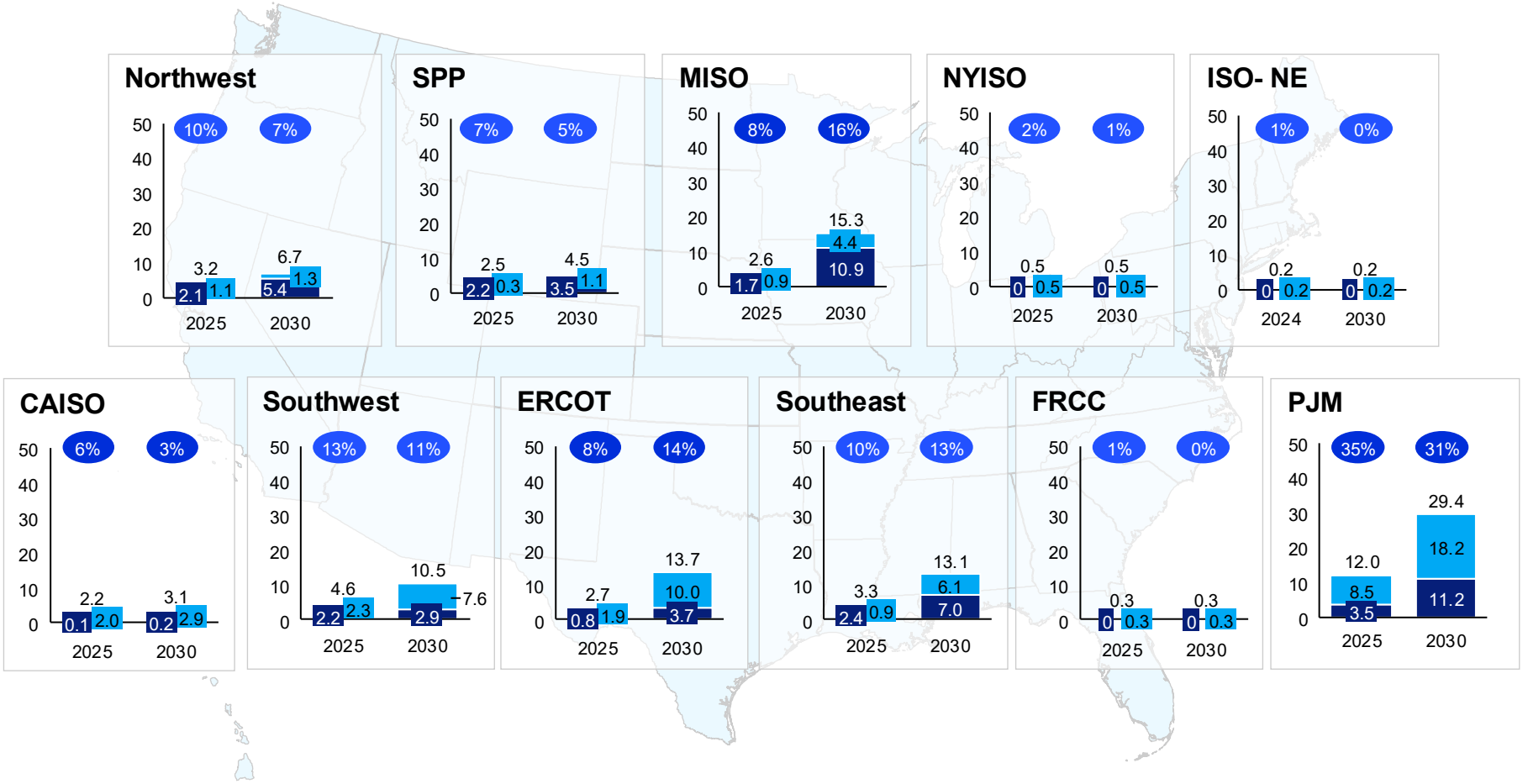

Source: McKinsey Proprietary Data Center Demand Model

# Demand: PJM is expected to remain largest DC market; MISO, SW, SE, ERCOT expected to reach ~+10GW by 2030

Datacenter demand outlook by datacenter type and electric market

AS OF OCTOBER 2025

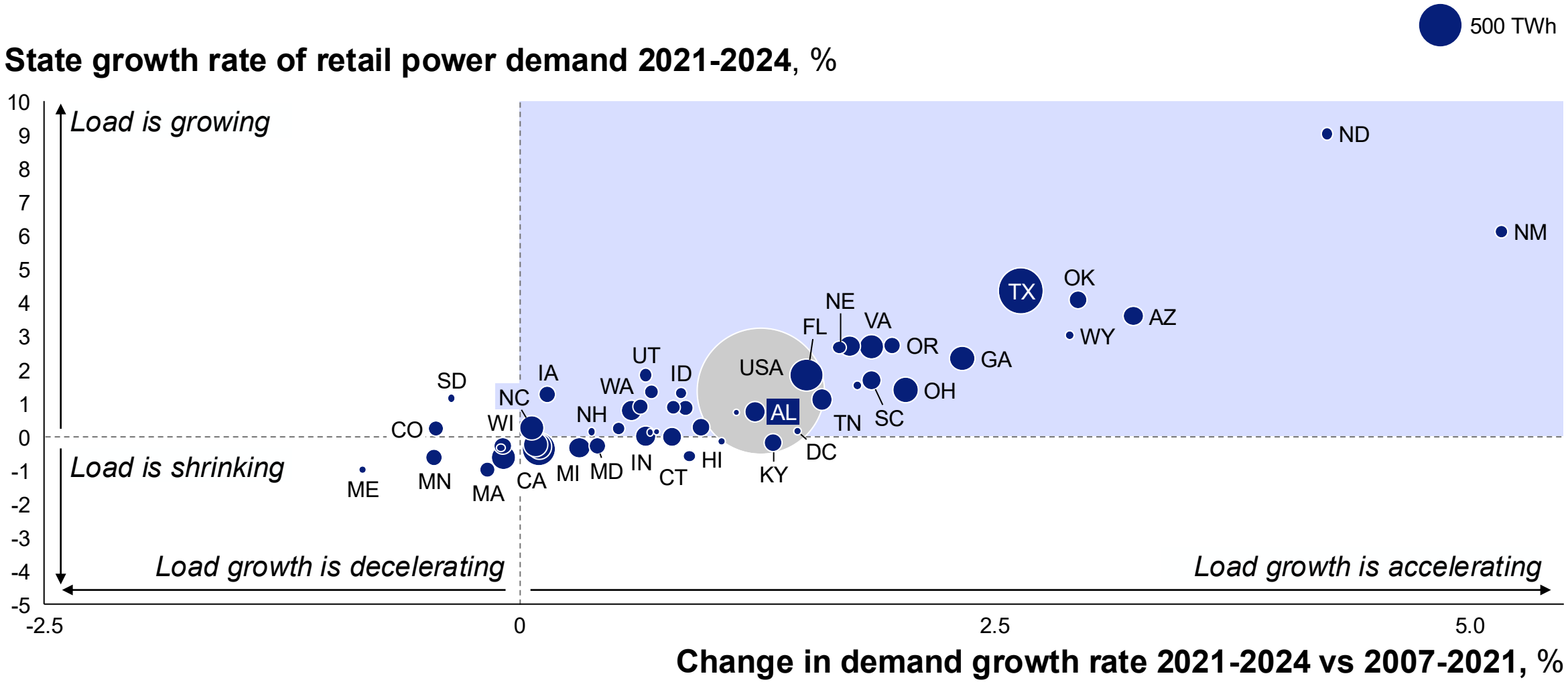
## US data center expected capacity[1], GW




1. Includes a 15% haircut for announced projects that are unlikely to be built; 25% assumption for NoVA // 2. Facilities where businesses can rent space to house their own servers and other computing hardware // 3. Facilities owned and operated by companies (Microsoft, Meta, Amazon, Google) that provide cloud services on a massive scale

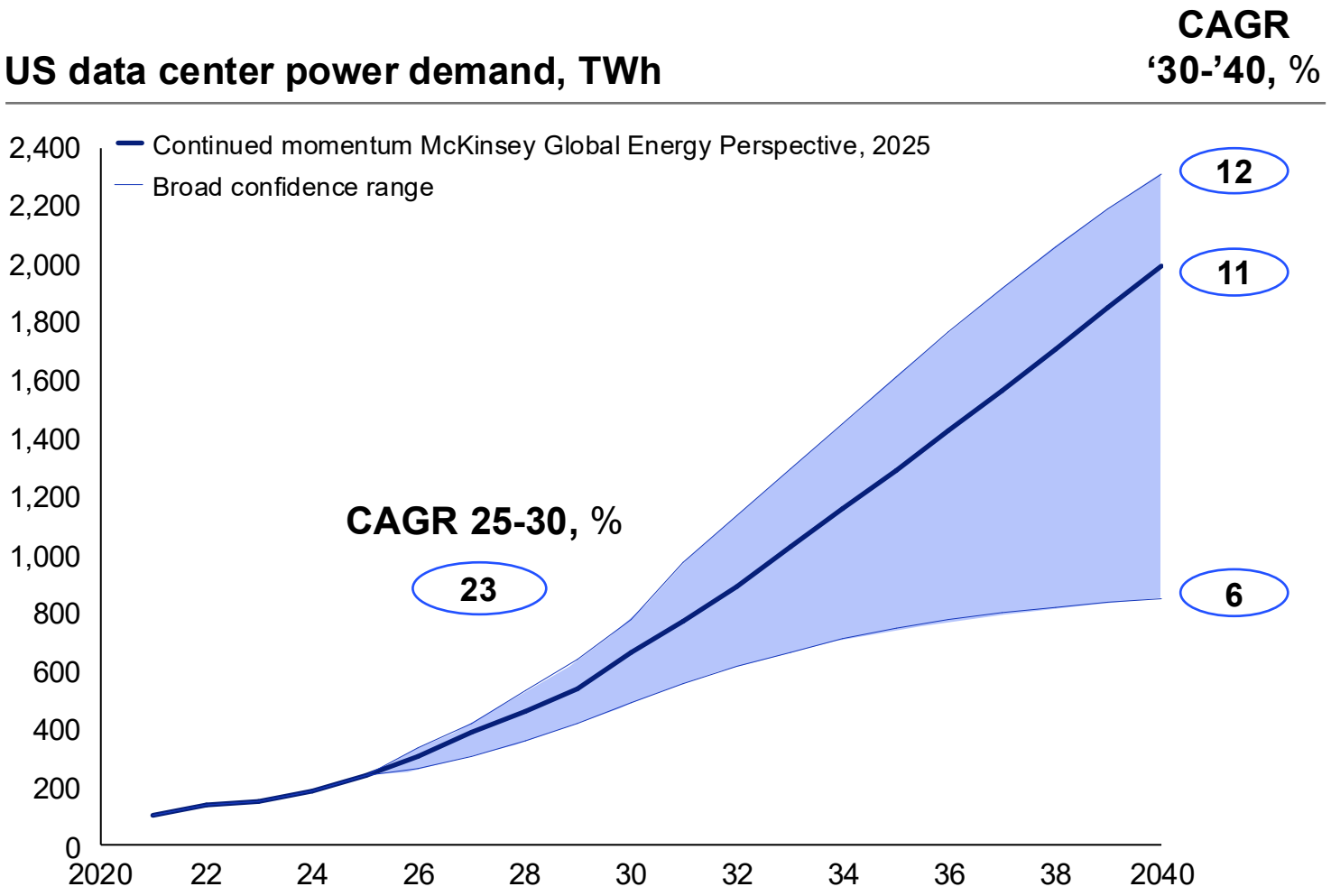
Source: S&P 451, McKinsey datacenter demand model

# Demand: The increase in power demand has already begun




Source: EIA.

# Demand: We see a robust outlook for the next ~5 years, uncertainty increases to 2035




- **Tech capital cycle lasts 5-7 years** as evidenced by long-term capital commitments on physical infrastructure and GPUs
- **AI usage continues to grow** and has barely scratched the surface with most organizations still in proof-of-concept mode
- **Jevons paradox.** Chip efficiency gains offset by increased demand for compute

Source: McKinsey Global Energy Perspective 2024 and 2025; McKinsey Datacenter practice, internal analysis

# Supply: Supporting increased demand for power to 2030, primarily from data centers, will stretch the US power sector

US ability to support firm load

| Gen mix delta | 2025-2030 firm generating potential, GW | Comments |
|---|---|---|
| Planned thermal retirements | (50) | Planned as of Q4 2025, with precedent to continue operations, at some operational risk |
| Utility scale gas additions | 50 – 60 | Estimated capacity available to be installed by 2030, further unlocked in later years |
| Current US thermal headroom | 45 – 75 | Running existing fleet at higher output; siting is limited near DC 'hotspots' (requires substantial flex capacity) |
| Extensions to planned retirements | 20 – 30 | Extensions of some planned retirements are possible, but may require additional capital |
| Solar and wind additions | 15 – 20 | Production which can be reasonably firmed accounting for seasonality (requires substantial flex capacity) |
| Distributed/small scale gas | 10 – 20 | Speed to power and locational flexibility offsets higher cost and emissions at some sites |
| Further aging plant outages | (30) – 0 | 30GW of plants will be at 65y+ of age by 2030, without a committed plan to retire |

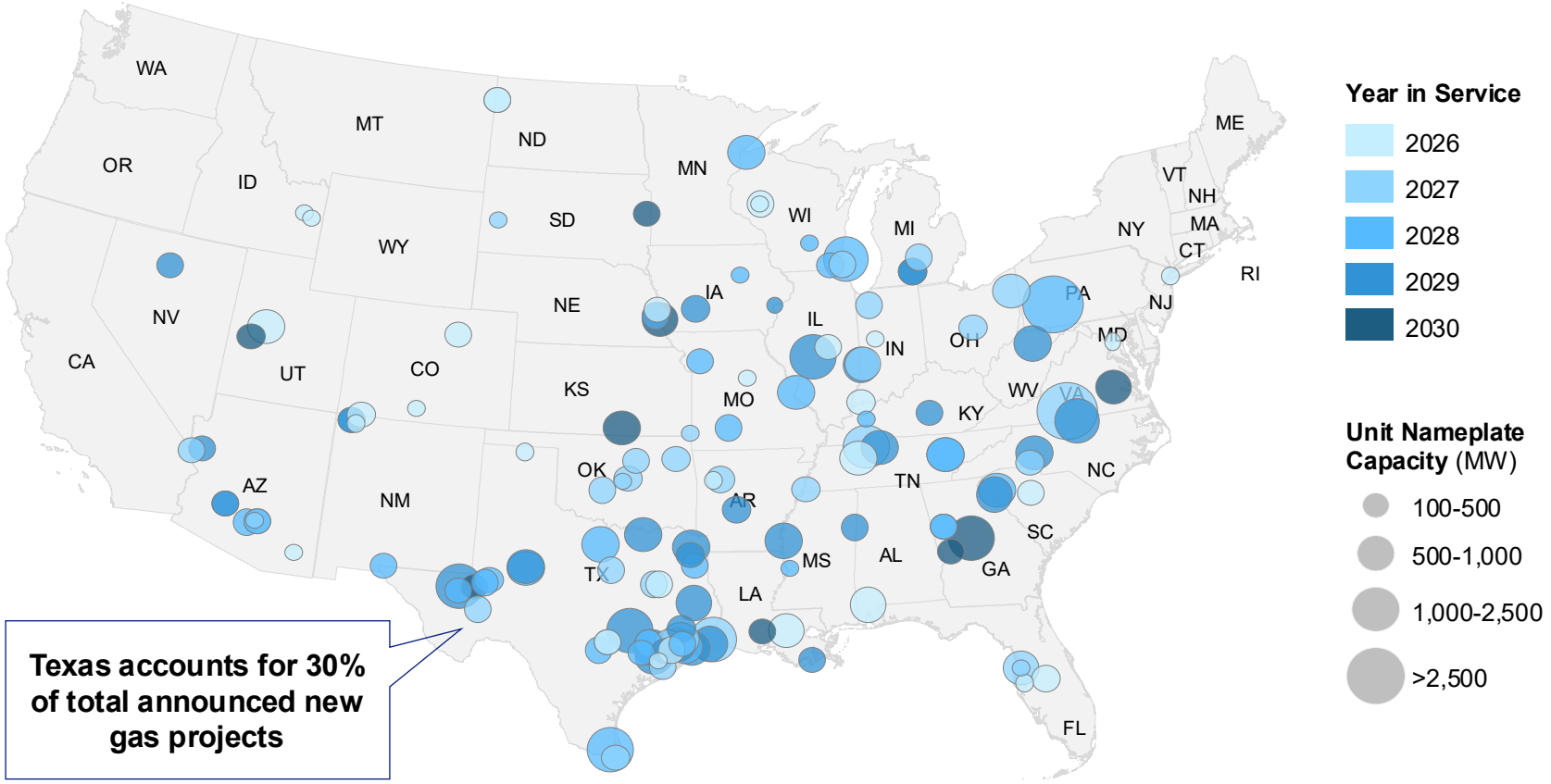
**90-100GW of firm capacity <u>needed</u> to support ~65 GW US DC demand buildout to 2030** – current firm gen potential estimated at 60-105GW by 2030

**60-155GW across a mix of solutions will help meet the demand,** however some require flexibility and backup

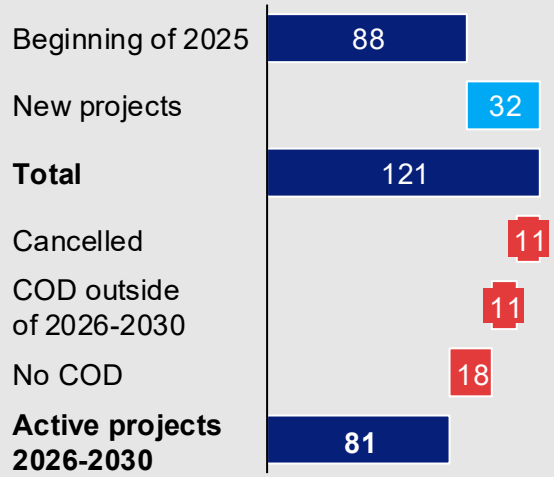
# Supply: 120GW of new gas projects announced with 80GW of active projects between 2026-2030

**As of August 2025**

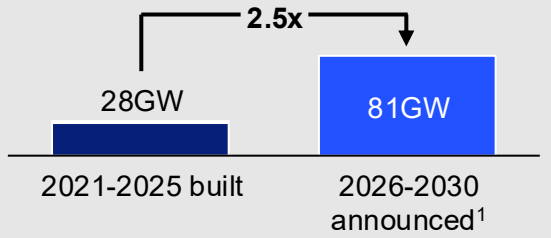
## Announced new gas power projects in US[1] – larger than 100MW with COD between 2026-2030




**New projects are constantly being added to the pipeline** with some projects cancelling




Next 5 years' announced gas capacity is **close to 3X what was built over the past 5 years**

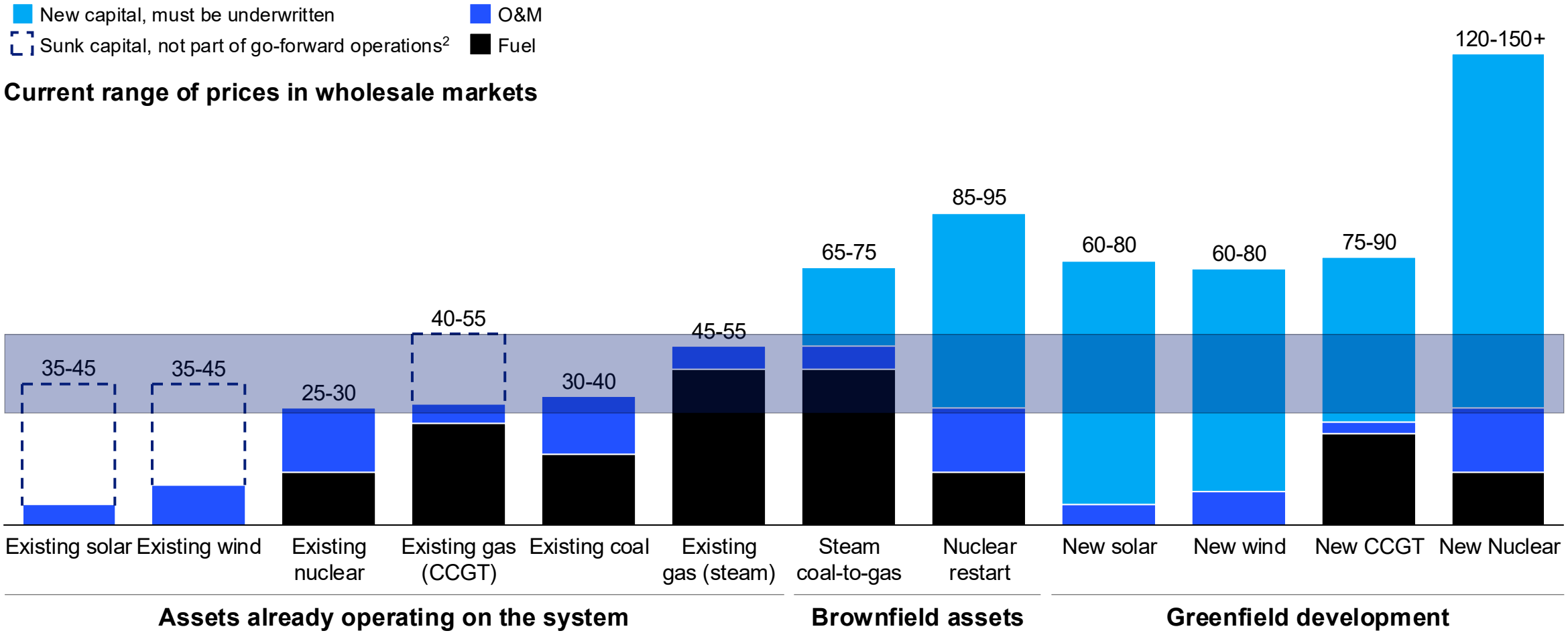



1. Only includes projects above 100MW; only includes CCGTs and CTs (i.e., does not include recips and other technologies that use gas as fuel)

Source: Announced gas projects sourced from media search, S&P (as of August 2025), McCoy Report (Q2 2025)

# Supply: Price signals do not incentivize investments into new generation assets, though resource adequacy is a growing concern

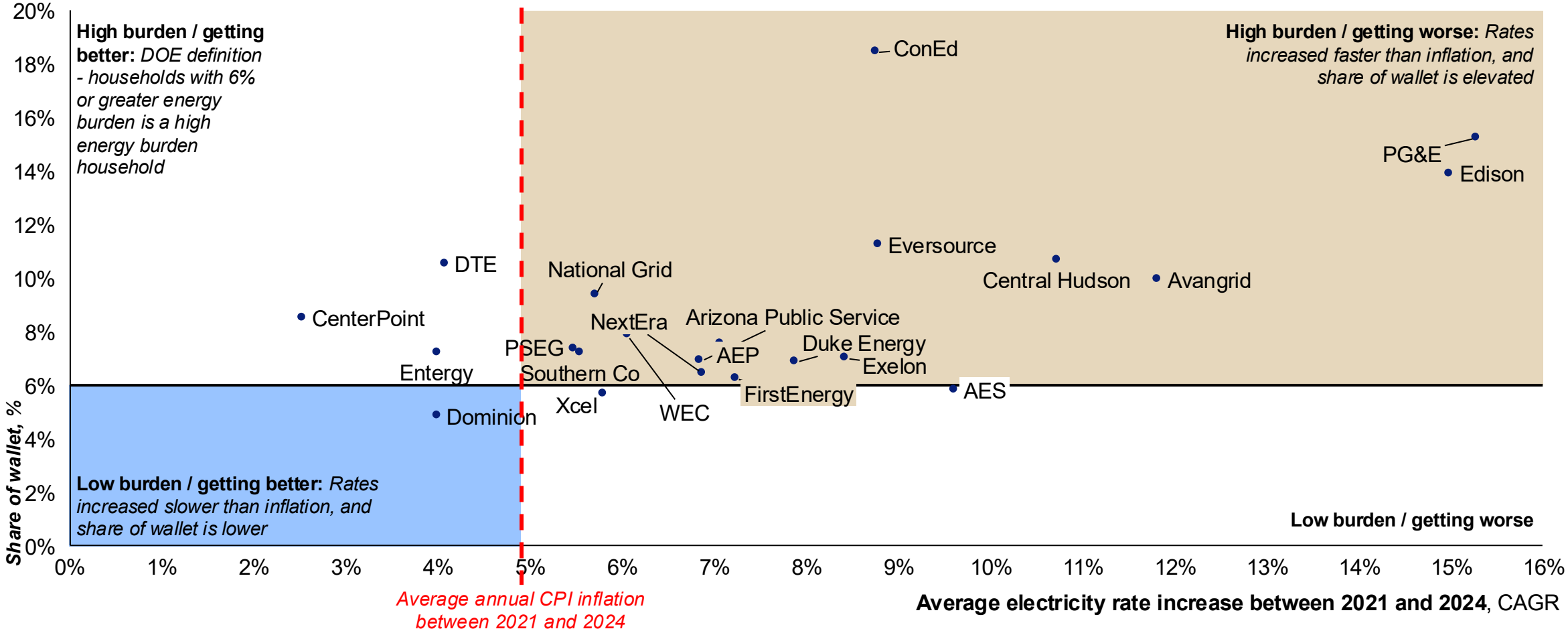
Full cost of power from US-based generating assets[1], $/MWh




1. Capacity assets such as peaking gas plants and battery storage not included on a $/MWh basis; although they provide significant value to the system
2. A substantial fraction of operating nuclear, coal, and steam-gas plants are fully depreciated

# Growth impacts: Affordability is under pressure, especially for lowest quintile households across many jurisdictions

**Share of wallet for lowest quintile household in 2024[1], %**




1. Share of wallet weighted by county household population size for utilities with mutli-county service territories. Average household power consumption for bottom quintile assumed to be 8.4 MWh. Rate increases based on EIA residential rates for bundled customer only. Analysis does not account for LMI support / energy assistance programs.

Source: DOE LEAD, FERC, EIA, Census.

# Growth impacts: The effect of load growth on affordability will depend on utility and regulatory posture by jurisdiction

**Utility dive**

*January 7, 2026*

## Data Centers were 40% Of PJM Capacity Costs In Last Auction

Data center forecasts - beyond existing data centers - made up 45% of the $47.2 billion in capacity costs in PJM's last three capacity auctions, according to a report by Monitoring Analytics.

**Power mag**

*July 10, 2025*

## Regulator Approves AEP Ohio's Landmark Data Center Tariff

The Public Utilities Commission of Ohio (PUCO) has approved a landmark tariff structure requiring large new data center customers to pay for a minimum of 85% of their subscribed electricity usage-regardless of actual consumption-for up to 12 years.

**Utility dive**

*November 25, 2025*

## NIPSCO to supply 3 GW to Amazon data centers in northern Indiana

Northern Indiana Public Service Co. and an affiliate expect to spend about $7 billion on 2.6 GW of gas, 400 MW of storage and transmission - to be paid for by Amazon.

**Data center dynamics**

*January 17,2026*

## Trump admin and governors call on PJM to "require data centers to pay for the new generation built on their behalf"

But it's not clear if any of the demands will be enforced

# Growth impacts: What utility investors are watching for

**Capital execution** at scale, on time and on budget

**Accretive growth**, likely driven by data centers

**Nuanced affordability** dialogue

**Smart cash management** and capital prioritization

**EPS guidance** – will 9% become the new normal?

**Post 2030 growth –** continued momentum or flattening out?

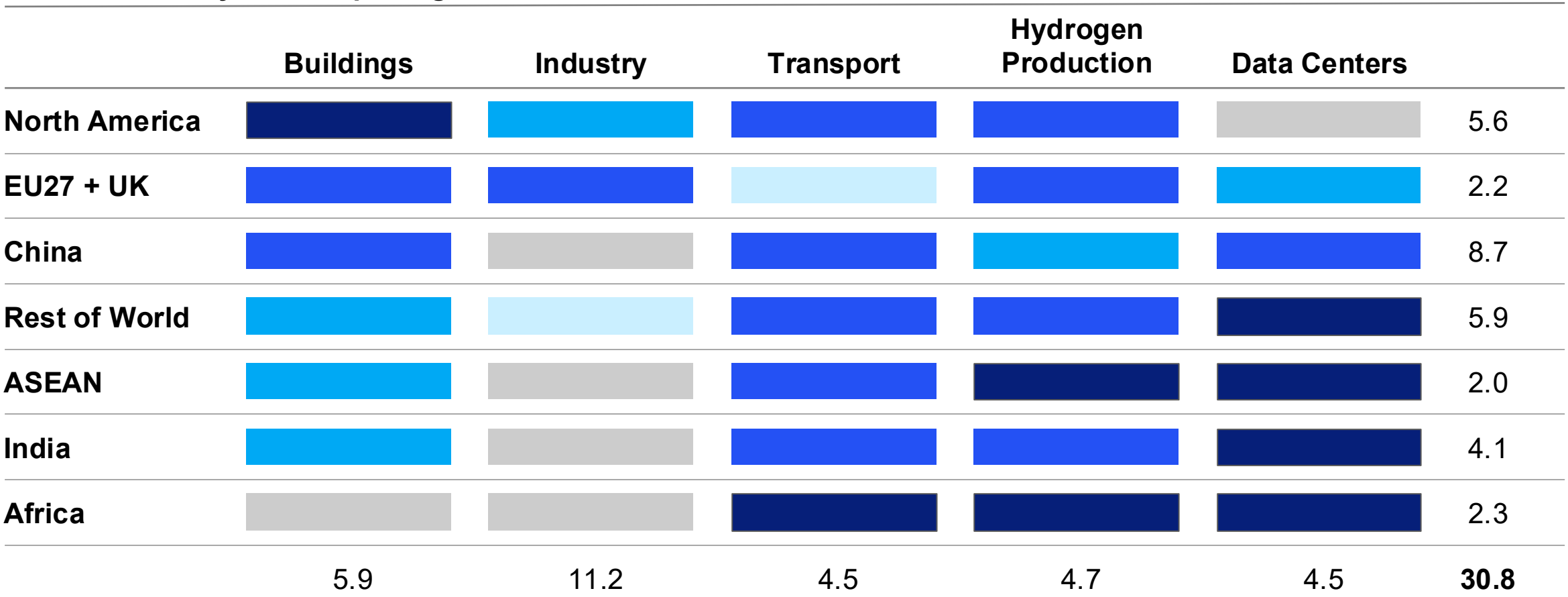
# APPENDIX

# Demand: Global demand growth comes from mainly from industry & buildings except North America where data centers is key

Continued Momentum

Relative growth of sector within region: <10% 10-20% 20-30% 30-40% >40%

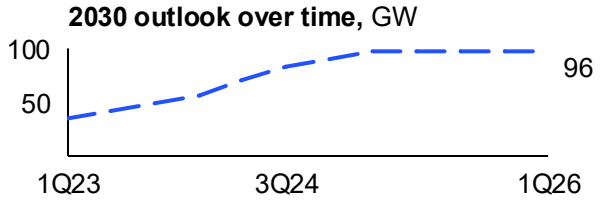
## Global electricity consumption growth between 2024 – 2050, thousand TWh



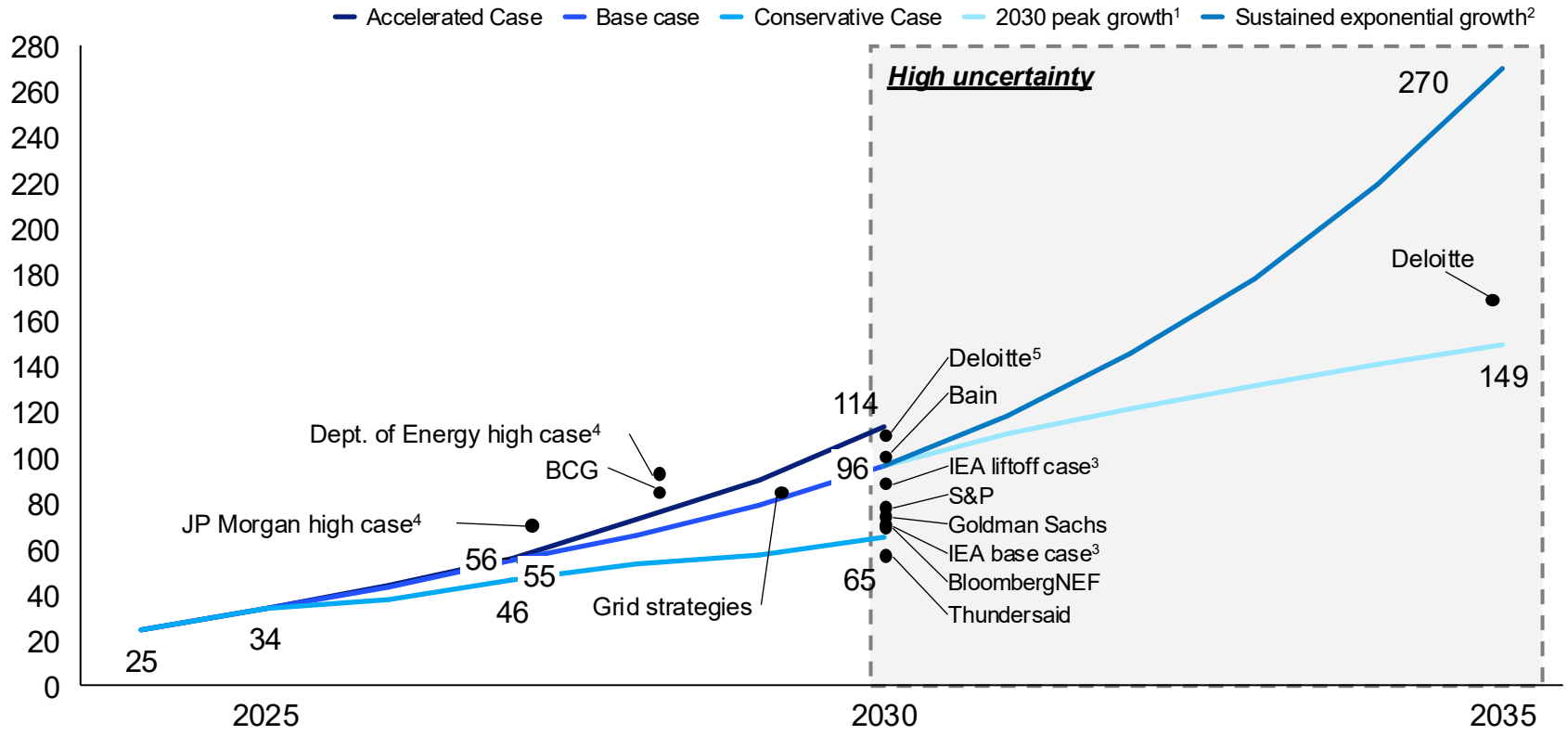

Source: McKinsey Energy Solutions Global Energy Perspective 2025

# Demand: US data center capacity is anticipated to grow by 3x by 2030

**Preliminary**




## Estimated US DC demand, 2023-2035 GW




1. Key assumption: Demand growth slows to 9% annually from 2030 to 2035. The inflection point is set at 2030, reflecting a maturing market with slower growth as penetration increases
2. Key assumption: Data center demand is assumed to continue growing at 23% per year through 2035, in line with the 2025–2030 trend and with no structural slowdown
3. Scaled down from global case estimates using McKinsey global to US scale down factor
4. Ratio TWh to GW assumed at 6.29 based on 2024 ratios
5. 2035 estimate scaled down to 2030 using linear scaling factor

Source: McKinsey Proprietary data center demand model as of January 2025; Press search (e.g., BCG, Deloitte, Bain , IEA)

## Key takeaways

- **In base-case, data center demand could almost triple by 2030** from ~35GW to ~100GW
- **Conservative case would still see demand double by 2030** – indicating significant opportunity new energy development in weak growth outlook
- **Key model drivers are AI adoption,** software efficiency, hardware efficiency, and PUC
- **Some 3rd party DC pre-2030 land significantly above the McKinsey projection,** with most landing at or above the base case in 2030