AI, AI, AI, AI, Canta y No Llores.

OPPENHEIMER

November 2025

Stephen Masri
Managing Director – Investments

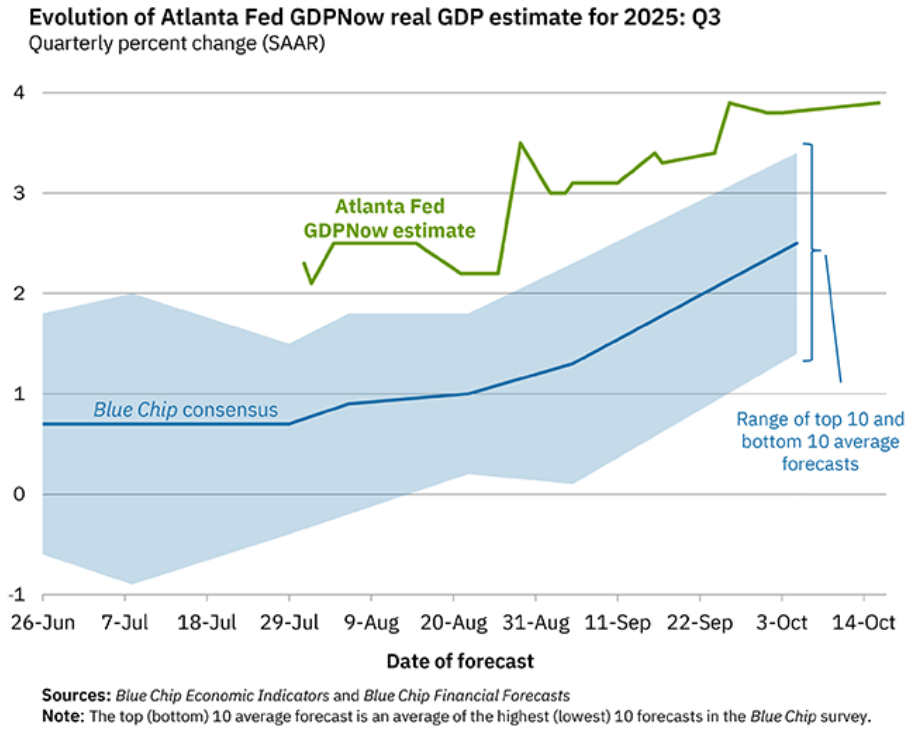
Oppenheimer & Co. Inc.
Chrysler Building East Annex
New York, NY 10017
(212) 667-4445 Phone
(800) 620-6726 Toll Free

September is renowned for poor stock returns—averaging a -1.1% loss since 1928, with some historic double-digit declines into October. 'Tis the season. With PE valuations historically high, we made some precautionary sales.

We did see volatility amid trade disputes. But no correction. A financial writer trying to enliven boring statistics succeeds with "Uptober." The "AI Bubble" warnings of the summer are being dispelled as investment continues increasing. There is greater reason for enthusiasm than just a month ago, but also factors we should not ignore.

AI = Growth

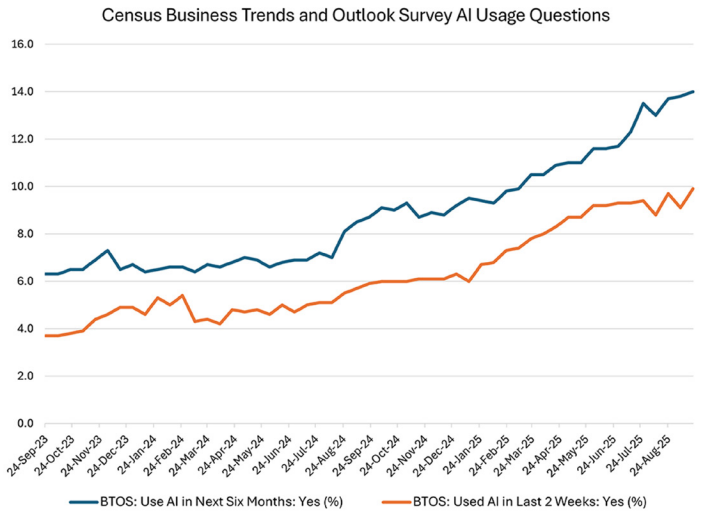
We worry about consumers, but the US economy is growing, even accelerating:



Atlanta Federal Reserve Bank

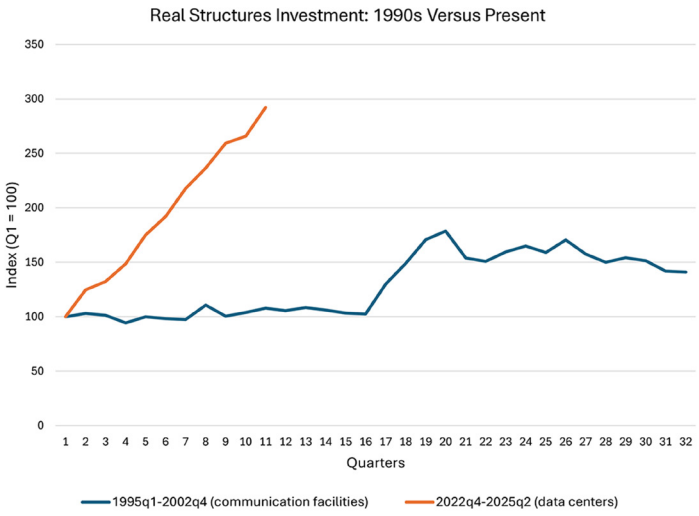
AI-related expenditure (capex) is driving this. In the spring, construction plans for 70 large datacenters had been announced; by summer plans rose to over 200. The US has 5,452 datacenters, Germany 529.

Envisioned AI use keeps rising:



Richmond Federal Reserve

In response, buildouts are ramping more rapidly than during the Dotcom boom.



Richmond Federal Reserve

Although parallels are often drawn, the Dotcom comparison not fully apt. Back then, stocks rose with no revenues. Today's hyperscalers are among the most profitable enterprises since the British East India Company led global trade volumes in the 18th century

Hyperscalers' 2025 capex plans earlier totaled $320 billion, up from $230 bn last year:

Amazon:	$100 billion
Microsoft:	$80 billion
Alphabet:	$75 billion
Meta:	$60–$65 billion
Tesla:	$5 billion

Here in the midst of 3rd quarter corporate reports these companies are reporting spending running ahead of those earlier numbers.

Oracle, in a bid for market share, issued a large bond toward a $38 billion funding—a big bet with a debt-to-equity ratio already 500%. We also see "circular" funding with chip producers and chip buyers lending to each other. Beware. **When ambition leads to overcapacity, that is a classic business cycle top. That is not yet evident but it will bear watching.**

AI related stocks have accounted for 75% of S&P 500 returns, 80% of earnings growth, and 90% of capital spending.

Bureau of Economic Analysis, 29 September 2025

By 2030, companies will invest almost $7 trillion in datacenter infrastructure globally… 40% in the United States.

McKinsey & Company, 8 August 2025

That is real money, even in a $30 trillion annual economy. BusinessInsider writes of the outlay boosting GDP by $20-$30 trillion over 10 years, with a 15% rise in labor productivity. That entails layoffs. Amazon just announced 30,000 job cuts, adding to dismissals across the industry. Technology is a Cronus eating its own.

GPU designer Nvidia forecasts that its customers **Apple, Meta, Microsoft, and Alphabet will reach $4 trillion capex by 2030**. That also benefits Taiwan Semiconductor, the world's chief chip fabricator. Our clients own both.

AI growth and other factors

All very exciting. But we might someday say as Yogi Berra did, "The future ain't what it used to be." Expensive PEs provide no margin of safety if results come even

slightly short of forecast. Jockeying companies intermittently lead or stumble as new products edge peers or don't. The 1990s internet promised to transform our lives and ultimately did. Yet many pioneers fell by the wayside. In this race too some present leaders will fade. Says Microsoft founder Bill Gates, "A ton of these investments will be dead ends." One can be obliged to switch ponies.

Microsoft, Amazon, and Google not only lasted, but continue dominant, justifying our clients' long-term ownership.

AI Costs: Electricity

Utilities, really? Some months ago, electric companies suddenly bounded higher. Our income-seeking clients own these sober businesses for dividends and modest appreciation. Traders ran them up, anticipating power billings to future datacenters. But to produce more voltage requires more plants, staggeringly large investments. The realization dawned and speculators turned tail. Such are the shifting whims of this market.

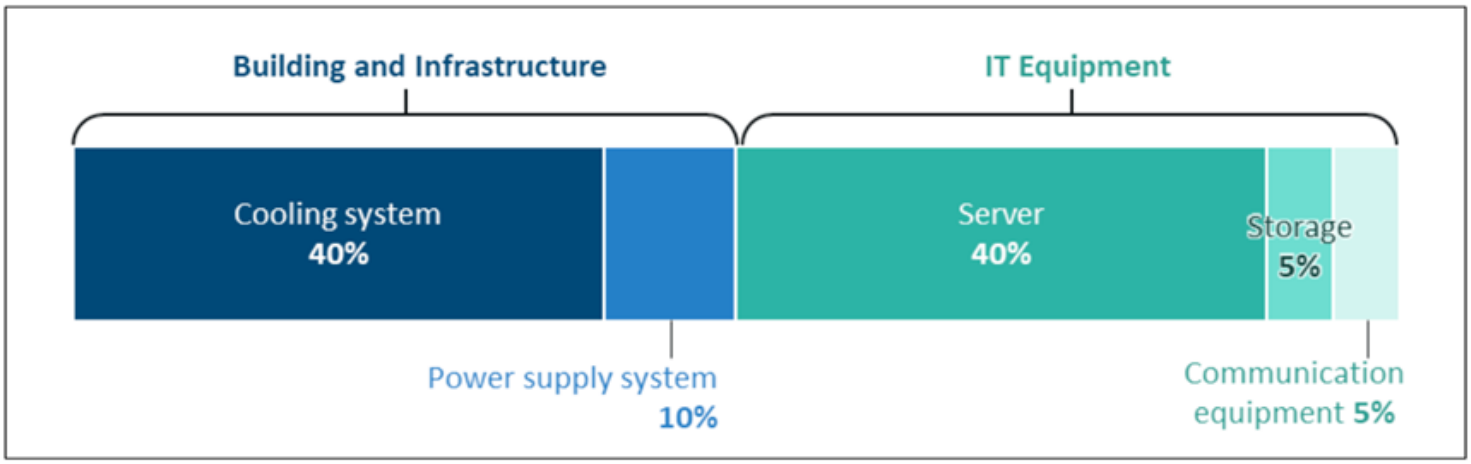
Researching current (no pun meant) and prospective power use is challenging. Suppose I tell you that you will likely drink 5.5 glasses of water today, then tell my colleagues Caroline that you are a 1.4-liter consumer and Nic that you have a 140-gallon capacity: the equivalency is entirely obscure without clarification. Power studies mix terms in a like manner. We read through kilowatt-hours, and from megawatts to terawatts, to deduce what is changing and share with you.

America's datacenter footprint is expanding at breakneck speed. *By the end of 2024 key markets contained close to 6.9 GW of live capacity—**a 34% jump in just one year**… colocation inventory in the nation was quantified at 12 GW… **double that in 2020**.*

American Association for the Advancement of Science, August 2025

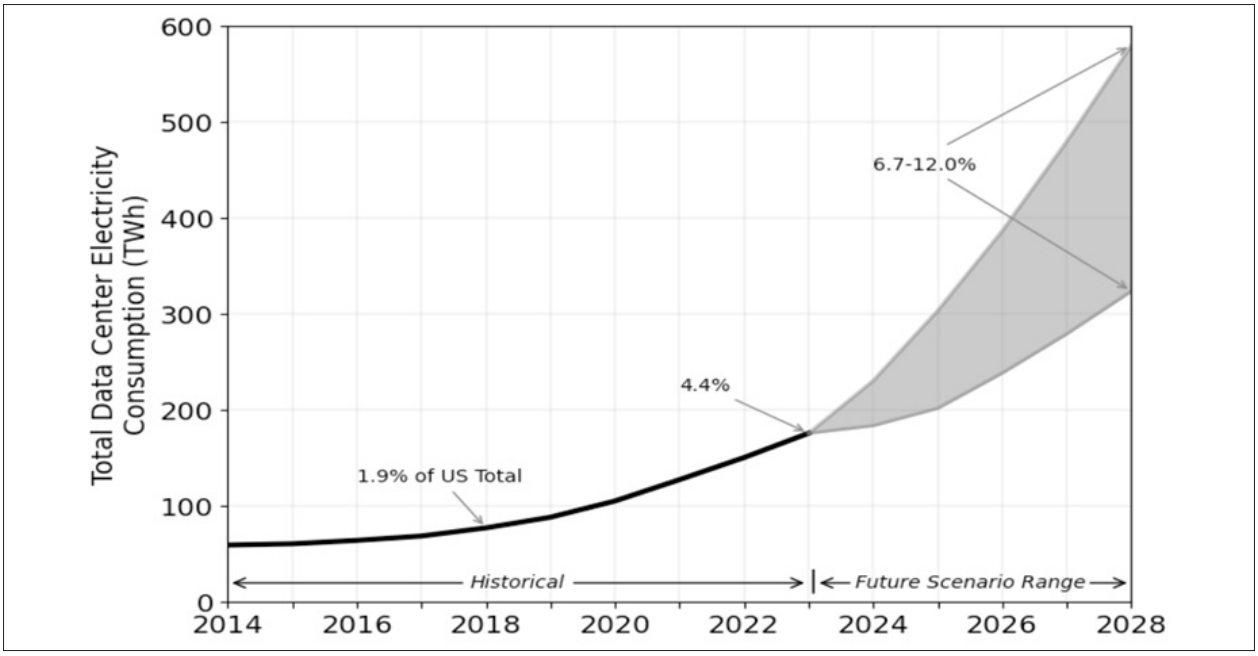
The ratio of 100% over four years to 34% in just one year is very evident acceleration.

Datacenters consume power this way:



US Congressional Research Service, 26 August 2025.

Datacenter proportion of total US projected power demand is…



US Congressional Research Service, 26 August 2025.

… a possible rise 6-fold in a mere decade. Extraordinary. And that atop a secular rise of remarkable proportions, with China first and the US second in power consumption:

US electricity consumption *in 2022 was about 4.07 trillion kWh… 1****4 times greater than electricity use in 1950.***

Lawrence Berkeley National Laboratory

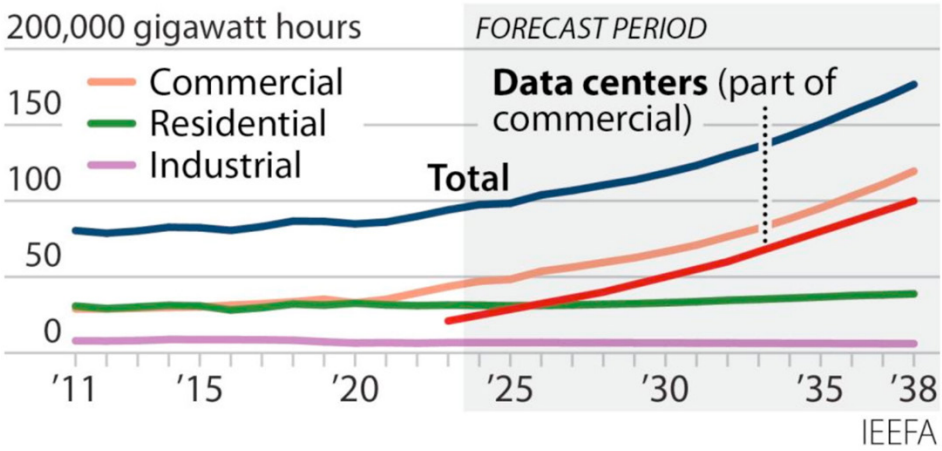
*Datacenters could consume between 4.6% and 9.1% of US electricity by 2030. The difference, 200 terawatt-hours, is equivalent to t****he energy consumption of almost 11 million homes.***

Electric Power Research Institute, 2024

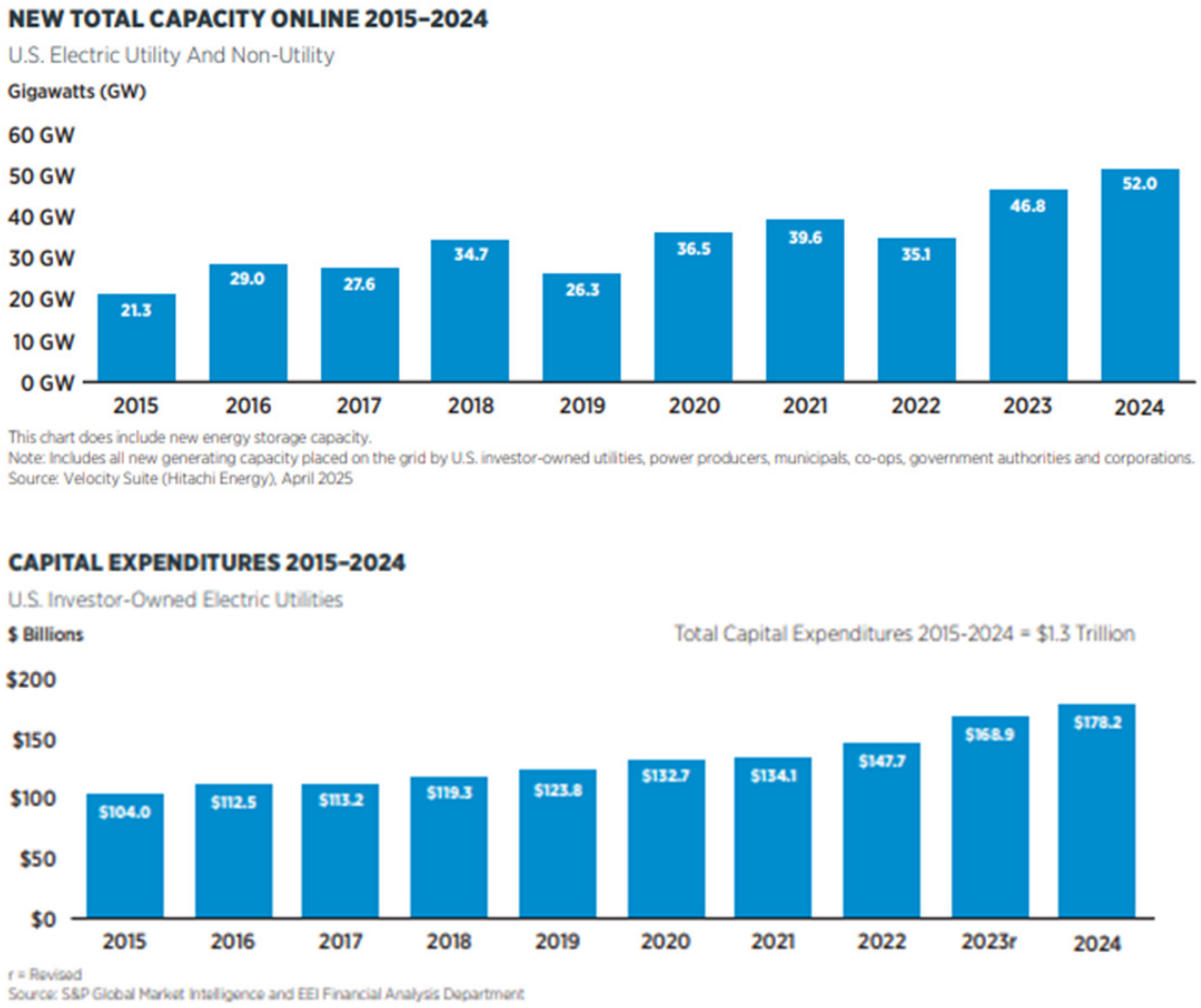
AI will consume 3.5% of world electricity by 2030.

Dominion Energy shows the inflection in its market:

Figure 6. Electricity sales growth projected by sector for Dominion Energy Virginia



US electric companies are adding capacity, increasing the pace with 90 gigawatts presently under construction:



Edison Electric Institute 2024 Financial Plan Review

43% of US electricity is generated using natural gas. Our dividend income investors own gas pipeline and storage companies. There is potential for growth investors, but sluggish global growth, sanctions/evasions and tariffs up/down keep shifting the outlook for drilling and exploration company revenues.

We keep finding new ways to burden our environment. Google reported its carbon emissions rose 48 % in 5 years. There is an average 10x increase in energy needed for AI over standard internet searches, and 33x for more complex AI reckonings.

Datacenters compete with other electricity consumers. Expect some costs to be passed on to you and me in higher electric bills:

… average residential prices jumped 27% in the five years since 2019 *… commercial prices increased 19% … and industrial prices climbed 19%*

Institute for New Economic Thinking, 2 October 2025

The world must seek more efficient processing and power generation. I previously noted nuclear's promise: we can now recycle 90% of yesteryears' spent fuel rods into power. Our clients own nuclear power company Cameco.

Technology is not idle. Nvidia's Blackwell GPU is 25 times more energy efficient than its predecessor. Software developers are also striving. The challenge is that as efficacy increases so too do computational demands.

Beyond nuclear, and less reliable solar and wind, we might tap new energy sources:

With new technologies enabling access to heat at depths beyond 26,000 feet, the world's geothermal potential could reach nearly 600 terawatts.
Interesting Engineering, 10 October 2025

AI Constraints: Water
Cooling a 100-megawatt datacenter daily consumes as much water as 2,600 households.

We wonder at where chip fabs and datacenters are built. Fabrication consumes up to 5 million gallons of water a day. California has 34 chip fabs; Arizona is second at 28 with more coming:

Arizona faced significant water challenges *due to ongoing drought conditions, groundwater depletion, and reduced availability from the*
Colorado River. University of Arizona

Texas is second in number of US datacenters:

Texas is facing a significant water crisis *due to a growing population, outdated infrastructure, and climate change.*
The Texas Tribune, 11 September 2025

Could we not build tech facilities on disused sites in plentifully watered old industrial states? Great Lakes and river cities were sited for optimal water access. Not all will work, but some could. However, remediation policies are deficient, and development follows better returns on campaign donations and incentives in arid states. Urban renewal remains ill managed on both sides of the Atlantic.

Other than its great river valleys, China is largely arid; its growth patterns and former over-population caused a further 24% desertification since the last century. It has a water issue.

Microsoft is innovating accordingly. Its new datacenters achieve a zero net cooling water consumption through recycling. But such measures are as yet only a partial solution.

AI: Other inputs
Building an AI datacenter can consume:

- Copper: 30 -100 tons
- Lithium: 1 - 5 tons
- Silicon: Up to 1 ton
- Concrete: 10,000 - 50,000 tons
- Steel: 1,000 - 5,000 tons

Conclusion
The AI phenomenon is showing no sign of rolling over. The path ahead will have pitfalls and valuations are too high to ignore. Central banks are easing and providing liquidity and regulations have eased, supporting equities broadly. Riding the winners a while longer makes sense—vigilantly—while diversifying into assets outside today's limelight is prudent.

Important Information

This commentary was prepared by Stephen Masri of Oppenheimer & Co. Inc. for client accounts managed within the Omega Group program. The foregoing does not constitute an offer to sell nor a solicitation of an offer to buy or sell any security and does not purport to be a complete statement of all material facts relating to any of the investments within the illustration. This information and the inferred opinions are subject to change. Accounts in the Omega program might or might not own shares of any of the companies mentioned above at or after time of writing and could be purchased or sold for reasons not detailed here. Neither Oppenheimer & Co. Inc., nor any of its affiliates, assume any responsibility for the use of this information outside of the Firm or within the herein referenced managed account. There can be no guarantee that companies selected for a portfolio will declare dividends in the future or that if declared will remain at current levels or increase over time. Past performance is no indication of future results. Investing in securities involves risks and may result in loss of principal.

The success of an investment program may be affected by general economic and market conditions, such as interest rates, availability of credit, inflation rates, economic uncertainty, changes in laws and national and international political circumstances. These factors may affect the level and volatility of securities prices and the liquidity of a portfolio's investments. Unexpected volatility or illiquidity could result in losses. Investing in securities is speculative and entails risk. There can be no assurance that the investment objectives will be achieved or that an investment strategy will be successful.

Some of the information in this document may contain projections or other forward looking statements regarding future events or future financial performance of Funds, countries, markets or companies. Actual events or results may differ materially and may lead to inadvertent omissions in this analysis.

The Standard and Poor's (S&P) 500 Index is an unmanaged index that tracks the performance of 500 widely-held, large-capitalization U.S. stocks. Individuals cannot invest directly in an index.