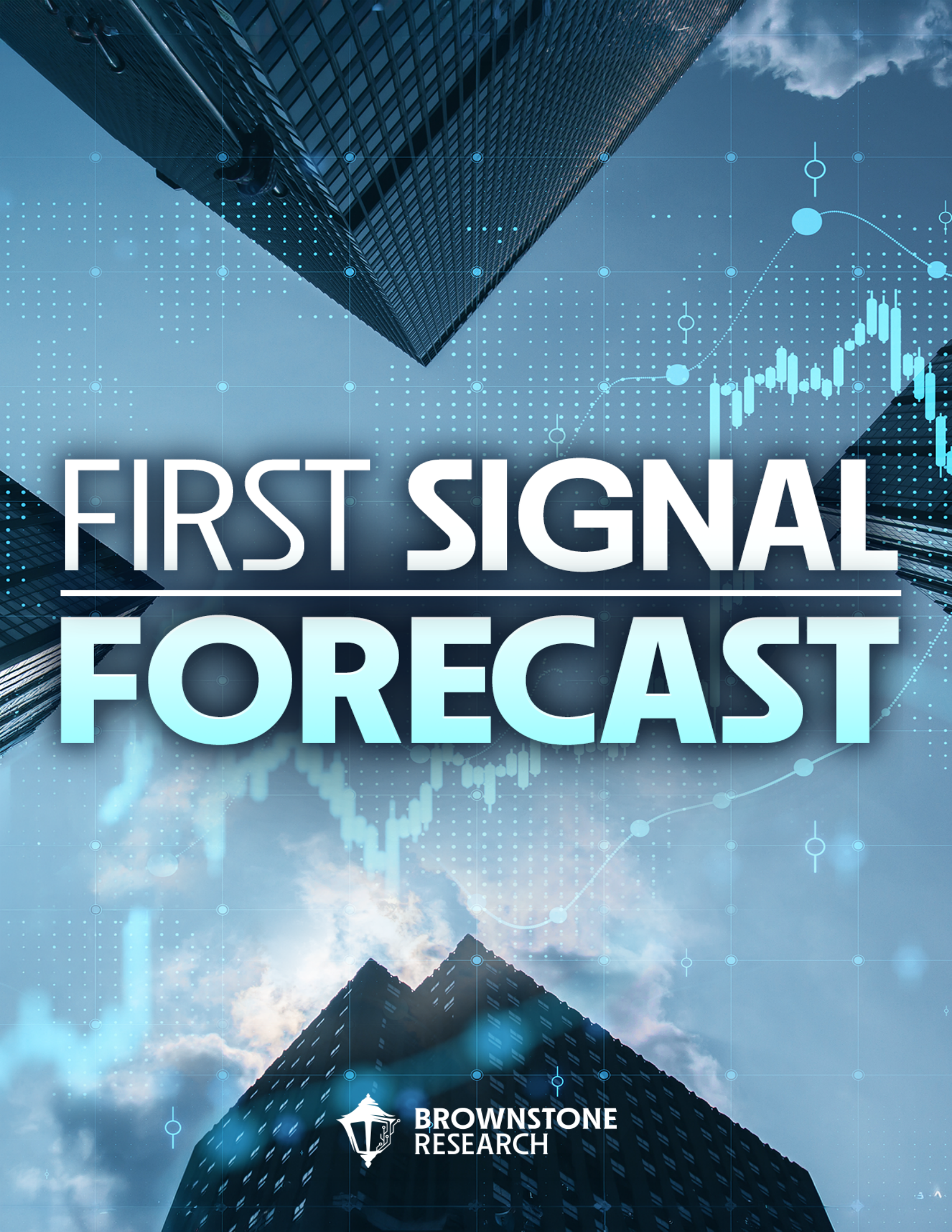
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THE FIRST SIGNAL FORECAST

By Brownstone Research, *First Signal*

Dear Reader,

Thank you for joining *First Signal*, published by Brownstone Research. In this free publication, we'll share a focused, five-minute brief from our roundtable of experts every Monday, Wednesday and Friday before the market opens. In this special report, we share the biggest predictions and the biggest opportunities according to our team of analysts. These are market-moving trends that most investors haven't caught on to…yet.

Regards,

The Brownstone Research Team

The Multitrillion-Dollar Space Economy…

By Jeff Brown, Founder & CEO, Brownstone Research

Historically, Earth's orbit was a frontier only accessible by large government programs, out of reach for all but a few companies in the private sector.

But that's all changed…

Three developments are driving this shift:

First: Launch costs have collapsed. Reusable rockets pioneered by SpaceX have dramatically reduced the cost of delivering payloads into orbit. Launch prices that once exceeded $20,000 per kilogram have fallen sharply to under $2,000 per kilogram today. This has unlocked entirely new categories of space missions… and that will continue as launch costs ultimately fall to $100 per kilogram over the next few years.

Second: Satellite constellations are proliferating. Instead of launching a handful of large satellites, companies are now deploying networks of hundreds, even thousands, of smaller spacecraft. These constellations support everything from global broadband internet access to Earth observation and logistics tracking.

Third: National security priorities are shifting toward space. Governments increasingly view space as a critical strategic domain, alongside land, sea, air, and cyberspace. As a result, investment from organizations such as NASA, the United States Space Force, and the European Space Agency is accelerating rapidly.

Taken together, these forces are fundamentally reshaping the space economy. Low-Earth orbit is no longer just a scientific outpost. It is becoming an infrastructure layer surrounding our planet - a network of satellites, sensors, communications systems

and orbital platforms that support modern civilization.

This is the beginning of a massive undertaking, the construction of orbital infrastructure designed to support what will eventually become a multitrillion-dollar space economy.

If we look back at history, railroads were only the beginning of the American industrial boom in the 19th century. What followed were the factories, power systems, and machines that made those railroads useful.

The same pattern is emerging in space.

Rockets carry payloads into orbit, but the real industrial backbone of the space economy will be built by the companies supplying the technologies that allow spacecraft to perform useful functions once they get there.

In the coming years, Earth will increasingly be surrounded by a dense layer of orbiting systems performing critical functions for the global economy.

Thousands of satellites will continuously relay communications signals across the planet. Earth-observation fleets will monitor weather patterns, agricultural conditions, shipping lanes and natural disasters in real time. Navigation systems will guide aircraft, ships and autonomous vehicles with centimeter-level precision.

As artificial intelligence (AI) continues to advance, the demand for computing power is rising at an extraordinary pace. Training and operating modern AI systems require enormous clusters of processors that consume vast amounts of electricity and generate tremendous heat. On Earth, this has already led to the construction of massive data centers that strain regional power grids and require increasingly complex cooling systems.

Placing data centers in orbit could address most of these constraints.

Satellites are naturally exposed to the cold vacuum of space, which can provide highly efficient thermal management. At the same time, spacecraft equipped with large solar arrays can generate continuous power from sunlight without drawing on terrestrial electricity grids.

By processing certain workloads in orbit, particularly data generated by satellites themselves, orbital computing platforms could reduce the need to transmit enormous volumes of raw data back to Earth. That would dramatically improve efficiency for applications such as Earth observation, weather modeling, and defense surveillance.

Over time, orbital data centers will become an important extension of the global AI infrastructure stack as they will support workloads that are difficult or inefficient to run on the ground.

Taken together, these systems will form an industrial infrastructure layer surrounding Earth. Just as highways, power grids, railroads and fiber-optic networks underpin economic activity on the ground, orbital infrastructure will underpin economic activity from space.

Empire of Light...

By Jason Bodner, Founder, Outlier Intel

Every AI prompt, Zoom call, stock trade, cloud

request, and streaming video increasingly depends on pulses of light traveling through ultra-pure strands of fiber optic glass thinner than a human hair.

Semiconductors may get all the attention, but the digital economy also runs on photonics. And most people never think about it.

When people hear "fiber optics," they imagine unlimited speed and capacity because, technically, light moves at 186,000 miles per second. Reality is a little messier.

In fiber-optic cable, light slows to roughly 124,000 miles per second (mps). Signals weaken over distance. Heat becomes an issue. Pulses spread out and interfere with one another. Every tiny imperfection in the glass creates latency and loss.

Fast, yes.

Instantaneous, no.

That is why the next phase of AI infrastructure is not simply about stuffing more chips into data centers. It is about improving the movement of information itself.

AI systems generate staggering amounts of data. Training clusters now contain tens of thousands of GPUs communicating constantly. Every AI response involves massive data movement behind the scenes. The bottleneck increasingly shifts from compute toward bandwidth, latency, and energy efficiency.

This is where photonics enters the story.

One of the most important breakthroughs involves "wavelength division multiplexing." Instead of sending a single beam of light through a fiber strand, engineers can transmit multiple wavelengths simultaneously. Think of it like turning a one-lane country road into a multi-lane superhighway made of light.

Recent advances in specialty fiber and optical systems are helping push those limits even further. Companies like Corning (GLW) are developing next-generation fiber capable of handling increasingly complex signal demands while reducing loss and improving density.

The engineering involved is absurdly sophisticated. We are talking about manufacturing glass so pure that imperfections are measured at the atomic level. The same material holding your wine is quietly helping power artificial intelligence.

That shift is creating ripple effects across the entire supply chain. Suddenly, a range of highly specialized industries is becoming strategically important:

- Specialty materials companies
- Optical component manufacturers
- Laser designers
- Precision testing firms
- Semiconductor packaging specialists
- Network equipment suppliers

Tiny pockets of industry that most investors rarely think about are quietly becoming essential to the future of AI infrastructure. Yet outside engineering circles, very few people could name the companies driving these advances.

That disconnect is often where opportunity lives. Especially when an industry moves from "important" to "absolutely essential."

Eventually, the biggest winners in AI may not be the companies generating intelligence... but the ones moving the light behind it.

This Sector Could Receive an Inflation Boost...

By Larry Benedict, Editor, Trading with Larry Benedict

Inflation is on the rise once again.

After being as high as 9% in mid-2022, a trend of disinflation took the Consumer Price Index (CPI) to a low of 2.3% in April of last year. That was approaching the Federal Reserve's 2% inflation target.

But that was then...

As I write, the latest reading of the top-line CPI shows a 3.8% year-over-year increase. And the reason for the spike is obvious--the Bureau of Labor Statistics' Energy category increased 17.9% year-over-year. A major oil shock tends to do that.

The much-watched "core inflation"--which excludes food and energy--is a little better. The latest reading is 2.8%. But even this figure is off the April lows and well above the Fed's 2% target.

The bottom line is this: Inflation is back. That could mean trouble for the Fed rate outlook and the stock market.

Remember, one of the Fed's mandates is "price stability." All else equal, rising inflation means the Fed could be inclined to hike its key rate. This, in turn, can raise rates across the economy. That appears to be happening. Back in May, the U.S. 30-year Treasury yield briefly touched 5.197%, the highest level since 2007.

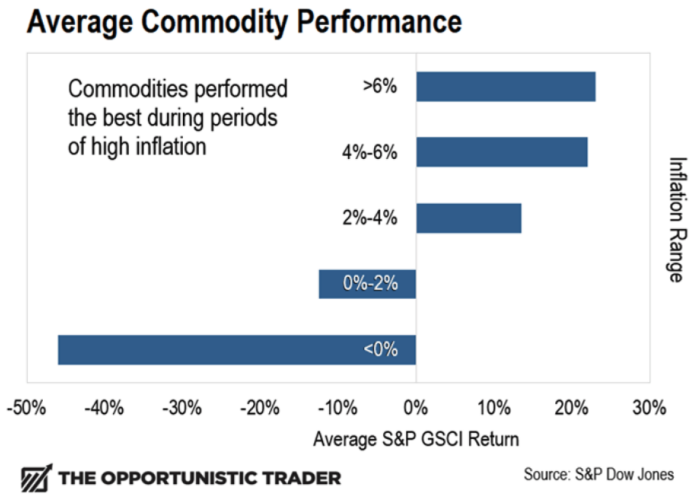
Rising rates can act as a headwind for stocks. That's because future earnings from public companies are compared to the "risk-free rate of return," which would be Treasuries. As the yield on Treasuries rises, the value of future earnings is marked down. All else equal, stocks get sold.

But it's not all bad news...

In fact, high inflation could be just the catalyst one corner of the market needs to move higher. This sector delivered 65% gains as inflation ramped up in 2022.

I'm talking about commodities.

Don't just take my word for it. Numerous studies from academics and investment managers show just that. Look at the next chart.

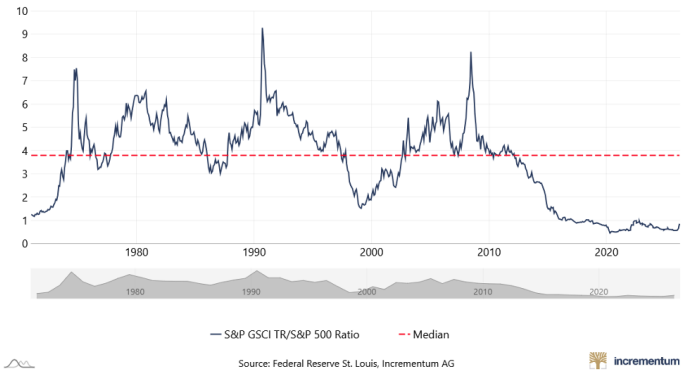


It compares how a broad commodity index has performed during different levels of inflation going back over 50 years. The index includes products like oil, gold, and even cocoa.

When inflation stays above the Fed's 2%

target, commodities have historically delivered an average annual return in the double digits. During the really high inflation periods above 4%, those returns jumped to over 20%.

With that in mind, have a look at the next chart.



What this shows is the S&P GSCI relative to the S&P 500. I'm sure you know what the S&P 500 is, but the GSCI is a widely recognized benchmark for the global commodities markets.

In a nutshell, what this chart shows is straightforward: Relative to stocks, commodities are historically cheap. And if newly heightened inflation proves sticky, don't be surprised if commodities turn into the trade everybody regrets missing out on in the years ahead.

The Permissionless, Agentic Economy…

By Ben Lilly, Editor, *Chain of Thought*

Transaction volume on public blockchains will soon increase by 100X.

Read that again. It's not 100%. It's 100X.

The infrastructure is being set up for autonomous AI agents to more easily function on public blockchains. In that world, a single deposit from one individual can produce one hourly transaction for life, autonomously. That's how 85,000 depositors can produce more than 2 million transactions per day or 744 million transactions in a year.

AI agents do what the name implies. They interact with the real world by performing specific tasks without human intervention. That includes tasks related to investing.

Want to set a stop loss on a position?

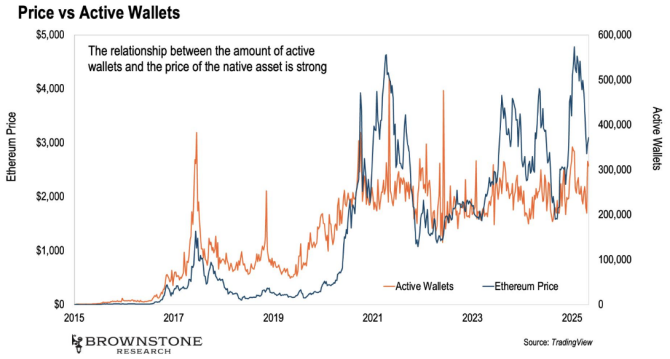
Want to execute a trade?

Want to create a loan using your portfolio as collateral?

Just tell the AI. And it will do it.

Not only is this method faster and easier than traditional blockchain processes, it's also faster and easier than traditional finance.

This will usher in the biggest repricing event for digital assets in our lifetime. That's because, as history shows us, price and network usage tend to move in unison.



This isn't years away. Transaction volume

on-chain points to only one conclusion -- agents have arrived.

I can't share all the recent developments making this new future possible. But a few that are worth noting:

CuEVM: EVM stands for "Ethereum Virtual Machine." We can think of it like Ethereum's computer. It handles things like the accounting change of two wallets sending assets between each other. On May 13, Singapore Blockchain Innovation Program (SBIP) researcher Minh Ho revealed that the newest version of CuEVM can simulate 8 million transactions per second for token transfers, and more than 1 million transactions per second for more complex interactions. This is next-level ability. It's the type of solution that can truly unlock an agent to constantly run simulations to produce ideal results.

Clear Signing: Launched on May 12, it creates an open standard for transaction hexadecimal code. The standard acts as an encyclopedia of sorts for the code. That means that the transaction result can be easily seen. We can think of the clear signing standard as the creation of an open repository for verifiers and attestors to say what the code does clearly. It acts as a source of truth.

Signature-Free Transactions: A recent research paper in March outlined something called "ZK-ACE: Identity-Centric Zero-Knowledge Authorization for Post-Quantum Blockchain Systems." For our purposes, the important piece is "zero-knowledge authorization." It's a proposed solution to create a transaction without the normal signatures we use today. More importantly, it gives the agent programmable authority. Think of this as limits or rules that the agent must abide by.

Again, these are just a few of the latest developments that will help power the permissionless, agentic economy. But with these alone, agents can simulate transactions, act with clarity, and take actions with human-defined limitations.

As agents become a reality, don't be surprised when congestion hits. But congestion means network demand. And network demand means demand for the native tokens to pay for these transactions.

Record token demand means one thing--higher asset prices.

If you're not excited by what's coming to digital assets... you really should be.

The Real Power Behind AI is Power

By Nick Rokke, Senior Analyst, Brownstone Research

The world is in the middle of the largest infrastructure buildout in modern history, driven by the growth in artificial intelligence. This shift is creating an insatiable demand for

compute, and that compute requires semiconductors at a scale the industry has never seen before.

The constraint today isn't demand; it's supply. The world simply cannot produce enough advanced chips to keep up.

Consider a few recent announcements:

- Microsoft laid out plans that implied it would raise its planned capital expenditures (capex) for the year from $140 billion to $190 billion.
- Meta raised its capex from a midpoint of $125 billion to $135 billion with a high-end forecast of as much as $145 billion.
- Both Amazon and Google raised their planned spending by $5 billion.
- Google management went a step further and said that it expects its 2027 capex to increase significantly from the planned $185 billion spent this year.

Critics argue that this level of spending will eventually lead to excess capacity and poor returns. But that view ignores what's happening on the ground. Even with hundreds of billions of dollars being deployed, there still isn't enough compute to meet demand.

There's one common denominator for all this infrastructure spend--it will require vast amounts of power.

A recent report from the International Energy Agency (IEA) puts it into perspective (emphasis added):

> Our Base Case finds that global electricity consumption for data centres is **projected to double** to reach around 945 TWh by 2030, representing just under 3% of total global electricity consumption in 2030. From 2024 to 2030, data centre electricity consumption grows by around 15% per year, **more than four times faster than the growth of total electricity consumption from all other sectors**.

This new demand is showing up in some surprising places...

On the surface, GE Vernova looks like a sleepy utility supplier. It was born out of the multi-year restructuring of General Electric and now operates as a standalone business that designs, builds, and services equipment that generates and transmits grid-scale power.

And judging by first quarter results, business is booming:

- Revenue: $9.3 billion, up 16% year-over-year, beating consensus by 2.1%
- EBITDA: $896 million, up 96% year-over-year, beating estimates by 13.9%
- 2026 Full-Year Revenue Outlook: raised from $44.5 billion to $45 billion
- Full-Year Free Cash Flow Outlook: raised from $5.2 billion to $7 billion

That free cash flow revision is what caught the market's attention.

It reflects a combination of strong demand

and increasing pricing power, particularly in natural gas turbines, where customers are now bidding up the price per kilowatt. This is exactly what we would expect in a constrained market where reliable power generation has become a critical bottleneck.

And the visibility into future growth continues to improve.

GE Vernova's backlog expanded to $155 billion this quarter, with management expecting it to reach $200 billion by the end of 2027. That kind of backlog provides a high degree of confidence in forward revenue and cash flow projections, effectively locking in growth well into the next phase of the cycle.

The company reported $2.4 billion in data center-related electrification orders in the first quarter alone. CEO Scott Strazik said, "Our Q1 electrification orders to data centers were more than the full-year 2025 results."

This is what exponential growth looks like.

And it doesn't appear to be slowing anytime soon.

Masters of Our Own Biology...

By Feruz Kurbanov, Senior Analyst, Brownstone Research

In labs and research centers around the world, something big has quietly been taking shape. It may end up reshaping your life, your health, and the economy in ways few can predict.

We're talking about biotechnology. But it's not the dry, textbook version. This is the real, right-now version -- where science is starting to do things that would have seemed impossible just a generation ago.

For most of human history, when something went wrong in your body, the best medicine could do was manage it. Slow it down. Work around it. Keep you comfortable.

That is starting to change.

Scientists are developing tools that don't just treat disease -- they find the faulty instruction in your DNA and correct it.

We're moving from being passengers in our own biology to something closer to editors of it. That's not a small shift. That may be one of the biggest shifts in human history.

For starters, finding new medicines is about to get dramatically faster.

Developing a single drug today takes over a decade and costs billions of dollars. Most attempts fail. It has always been an expensive, slow, exhausting process.

Artificial intelligence is changing the math.

AI can now predict how proteins behave inside your body, simulate how potential drugs would interact with them, and screen millions of drug candidates before a single one ever enters a lab.

The result?

The search is getting faster. Medicines that might have taken fifteen years to discover could take three. That speed has consequences -- for patients, for healthcare costs, and for the companies working in this space.

And the bottom line is this: Managing disease may eventually give way to fixing

it...permanently.

Think about how we treat most chronic illness today -- diabetes, certain cancers, heart conditions. The model is maintenance. Pills for life. Regular checkups. Careful routines.

That's changing thanks to gene editing tools. CRISPR was the famous one, but newer and more precise versions have followed. And they are pointing toward a different future. Instead of managing a condition for decades, you treat the underlying cause just once.

Early results in diseases like sickle cell disease are showing this isn't just theory. It's beginning to work in real patients.

We're still early. This won't be routine medicine next year, or even next decade. But the direction is real, and it's worth understanding.

The shift from lifelong disease management to one-time correction could quietly become one of the most important medical developments of our lifetime.

This new biotechnology may be coming for industries far beyond healthcare. Because once you can program living organisms, medicine is just the beginning.

Engineered bacteria could produce cleaner fuels. Biological processes could grow materials we currently manufacture in factories. Food production could be rebuilt around living systems rather than traditional agriculture.

This field, called synthetic biology, is early and faces enormous hurdles. Regulation. Safety. Scale. None of it is simple.

But major governments and serious investors are already positioning around it. That's because the potential isn't just a better hospital. It's a different kind of industrial economy.

Synthetic biology could eventually touch energy, manufacturing, agriculture and more. It's worth knowing the word and the idea behind it.

Every so often, a technology comes along that doesn't just improve one thing. It restructures many things at once. The steam engine. Electricity. The internet.

When that happens, it's not a trend. It's a new era.

Biotechnology is beginning to look like one of those moments. It's touching healthcare, manufacturing, food, energy and national security -- often simultaneously. That kind of reach is rare. And when it shows up historically, it tends to signal something much larger than a passing cycle.

And we're still at the very beginning.

To contact us, call toll free Domestic/International: 1-888-493-3156, Mon-Fri: 9am-5pm ET or email memberservices@brownstoneresearch.com.