THE AI ENERGY SAVIORS: HOW TO PROFIT FROM AI'S #1 PROBLEM

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The AI Energy Saviors: How to Profit on AI's #1 Problem

By Jeff Brown, Editor, *The Near Future Report*

AI data centers are massive power hogs.

Because of the processing speed and the sheer volume of data, the centers have to be cooled constantly. They require a cool, dry environment to operate.

And they need a huge supply of power.

In fact, hyperscale AI data centers use, on average, as much power as an entire city the size of Denver or Seattle.

And it's a problem that goes beyond the United States. One-fifth of Ireland's entire power usage comes from data centers. Worldwide, data centers are expected to eat up as much energy as a country the size of Japan by 2026.

Elon Musk has even confessed that energy solutions for AI are his number one worry.

That's why many of these Big Tech CEOs have been taking matters into their own hands and getting creative with potential power sources.

Sam Altman, the founder of OpenAI, recently sunk $375 million into a nuclear fusion power plant.

Mark Zuckerberg is experimenting with geothermal power in the Rockies for Meta's data centers.

And Microsoft just signed a deal to re-open one of the old nuclear reactors at the ill-fated Three Mile Island nuclear plant, something that would have been unthinkable just a few years ago.

That's how desperate these companies are for more energy to fuel their data centers.

While these projects are ambitious and headline-grabbing, they're far from immediate solutions. None are scheduled to produce any energy before 2030. And the AI boom can't wait that long.

That leaves an urgent need: these AI "factories" need energy now. Without it, the development of AI – and the future profits tied to its growth – will slow dramatically.

This urgent demand for energy created an opportunity for two types of companies. First, companies that help data centers maximize efficiency. Hyperscalers need to squeeze every last drop of performance from the energy they already consume. And second, companies that focus on generating and delivering the massive amounts of power these data centers need.

AI needs that energy right now. Or else it will slow down the progress… And the profits. In this report, we'll talk about one of each.

Company #1: Vertiv (VRT)

Vertiv stands as one of the most strategically positioned companies benefiting from the AI-driven surge in energy demand. An incredible 80% of its revenue comes from serving data centers – a level of sector concentration few companies can match.

Known for its cutting-edge heat management systems, Vertiv specializes in liquid cooling solutions. These systems are critical for keeping graphics processing units (GPUs) at optimal temperatures while they crunch massive amounts of data for AI algorithms.

Vertiv isn't new to this sector either. It boasts nearly 60 years of experience cooling high-performance computing systems.

The company traces its origins to the Liebert Corporation. It was founded in 1965 and was the first manufacturer of computer room air conditioning systems. Liebert's innovative solutions were acquired by Emerson Electric (EME) in 1987, where it thrived for over three decades.

Eventually, Emerson spun off its network power division, and in 2020, Vertiv became a publicly traded company through a reverse merger with a SPAC – GS Acquisition Holdings Corp. Vertiv has already proven to be one of the most successful SPACs in history. Since then, Vertiv's stock has risen significantly and still has ample room for growth.

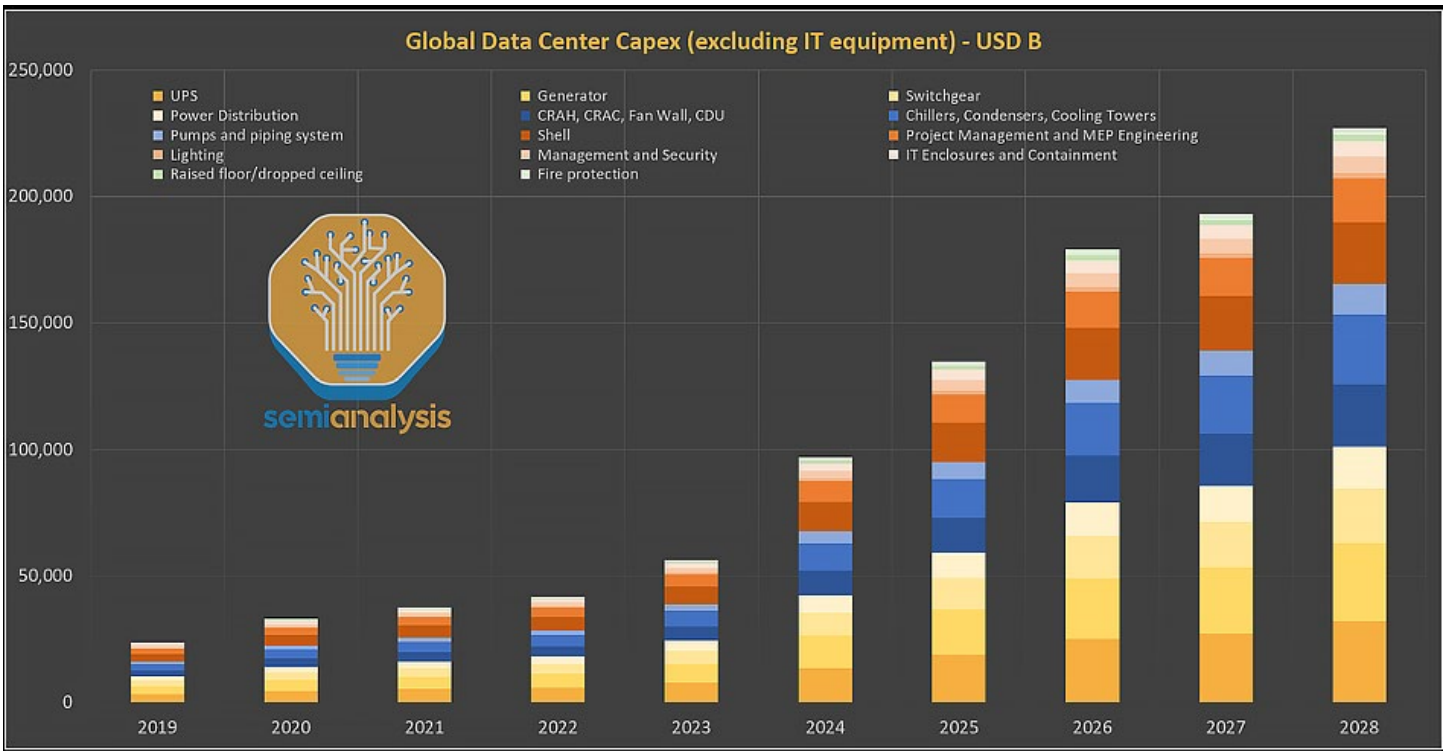
While the AI data center boom is a key growth driver for Vertiv, the opportunity doesn't stop at construction. Once a data center is operational, up to 50% of its electricity is dedicated to thermal management. As AI workloads increase, so does spending on cooling systems.

The chart at the top of the next page shows the expected data center capex. Note: this does not include spend on IT equipment like Nvidia or AMD GPUs. The blue boxes are cooling systems. And we can see in 2023 about $10 billion was spent on cooling systems. But by 2028, this will balloon to over $50 billion.

Vertiv also supplies uninterruptible power systems (UPS) and Switchgear, which are in the yellow boxes. The further expands its total addressable market.

The main reason for this market growth is that each generation of GPU requires more electricity to run. Even as computational efficiency improves, power consumption gets more concentrated. To illustrate:

- Nvidia Ampere A100 GPUs (2020): 300 watts (W) per unit



Source: Semianalysis

- Hopper H100 GPUs (2023): Up to 700W per unit
- Blackwell B100 GPUs (2024): Up to 1,000W per unit
- Blackwell B200 GPUs (2025): Up to 1,200W per unit

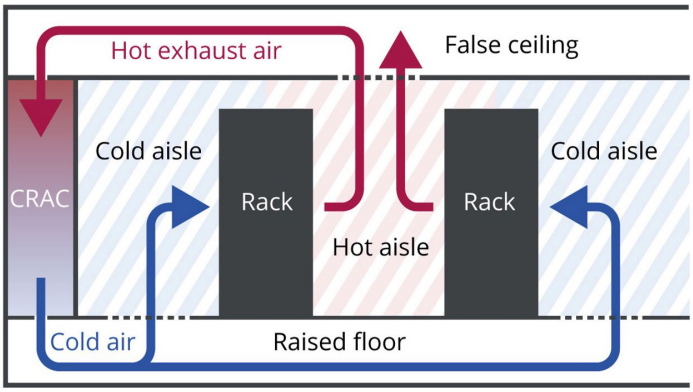
This escalating energy density has rendered older data centers obsolete for AI workloads. Many pre-2022 facilities simply weren't designed to handle the heat and power demands of modern GPUs.

This is why new data centers are being constructed, and older data centers are being completely rebuilt. As an example of how dramatic and material the situation is, last year, Meta Networks (META), demolished an unfinished data center it began in 2022 to rebuild it to handle an increased AI workload.

And the more electricity required, the more heat these GPUs give off. Vertiv's expertise in power and thermal management will drive its business forward in the coming years.

Cooling Solutions

For decades, high-performance computing relied on air cooling. Desktop and laptop computers, for example, typically use heat plates and fans to expel hot air. Data centers operated similarly, with systems designed to collect and expel heat using computer room air conditioning (CRAC) units. Here's a diagram of how it works.



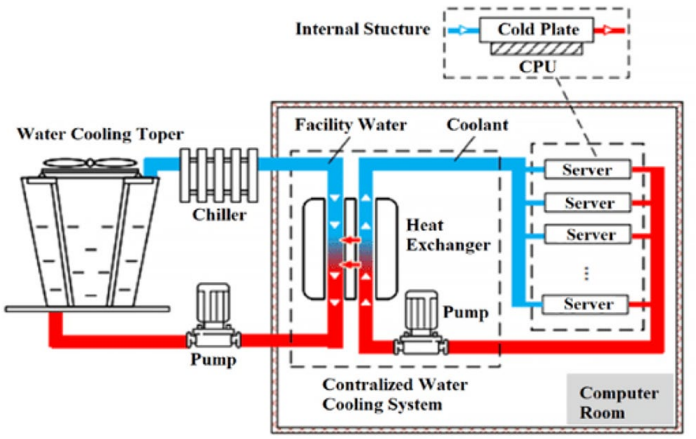
Source: 2crsi

Air cooling was the go-to solution because of its cost-effectiveness and ability to meet the power demands of previous generations of processors.

However, as GPU power consumption increases dramatically with each new generation, air cooling is no longer sufficient to maintain optimal operating conditions for today's advanced hardware.

Liquid cooling has emerged as the superior alternative, enabling data centers to handle the immense heat generated by high-powered GPUs.

In this system, a liquid substance flows over a cold plate attached directly to the GPU or CPU, efficiently transferring heat away from the components. One of the most common implementations, direct-to-chip cooling, has proven especially effective in managing thermal challenges.



Water cooling design in the data center [25].

Source: ResearchGate

For example, Nvidia recently demonstrated the capabilities of its next-gen B200 GPUs, which achieve a staggering 20 petaflops of performance when liquid-cooled at 1.2 kW of power.

By contrast, the same GPUs running on air cooling peak at 18 petaflops while consuming 1 kW. This 10% increase in computational power underscores the advantage of liquid cooling in maximizing GPU performance.

Beyond enabling GPUs to reach their full potential, liquid cooling systems are significantly more energy efficient than their air-cooled counterparts. Vertiv's research shows that liquid cooling solutions reduce overall data center power consumption by 10.2% compared to air cooling systems. This efficiency gain is critical as data centers face mounting energy demands and rising operational costs.

With hyperscale AI data centers consuming as much energy as entire cities, these savings can translate into millions of dollars annually for operators – making liquid cooling a compelling choice both economically and technologically.

Vertiv's Strategic Position in Liquid Cooling

Vertiv has strategically positioned itself as a leader in liquid cooling solutions through a multi-pronged approach:

1. **Robust R&D Investments:** Vertiv has heavily invested in research and development to design a comprehensive range of liquid cooling systems tailored to the needs of cutting-edge data centers.

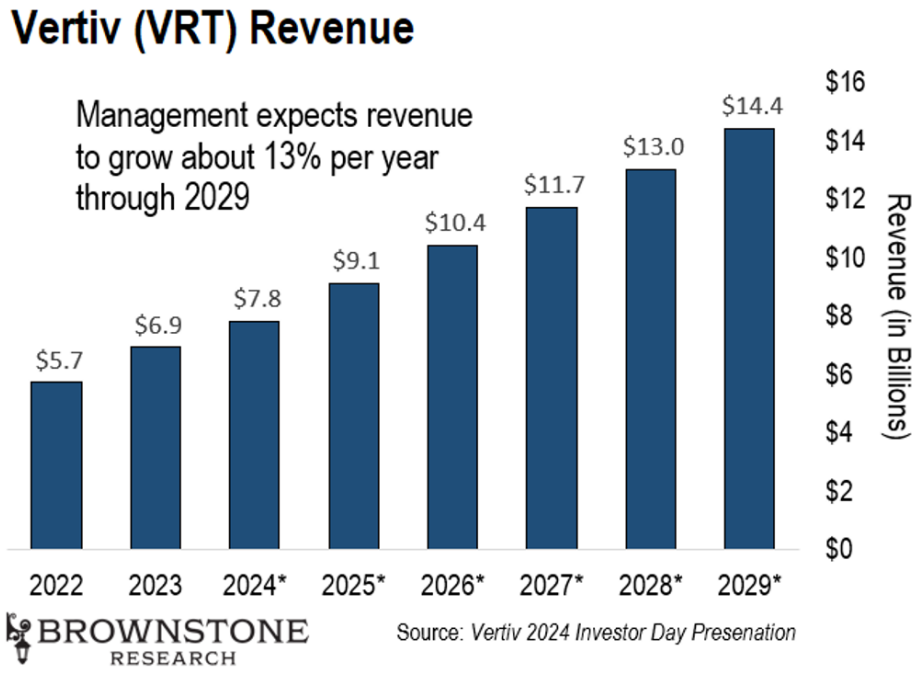
2. **Strategic Partnerships:** The company partnered with industry giants like Nvidia and Intel to ensure seamless compatibility between its cooling systems and the latest CPUs and GPUs, solidifying its role as a trusted supplier.

3. **Key Acquisitions:** Recognizing the need for rapid scaling in the liquid cooling market, Vertiv acquired CoolTera, a specialized cooling technology company, in December 2023. This acquisition not only enhanced Vertiv's product portfolio but also accelerated its ability to meet the surging demand for liquid cooling in AI-driven data centers.

Vertiv's Increasing Growth and Profitability

The strategic positioning allows Vertiv to move fast. This year, Vertiv rapidly scaled its liquid cooling production to meet surging demand. Initially planning to expand capacity 40x by the end of 2024, the company is now on track to achieve an impressive 45x expansion.

This pace of growth won't happen every year, but it demonstrates Vertiv's ability to adjust quickly to market demands and its commitment to being the most reliable partner for hyperscale data centers. It's this adaptability that's fueling Vertiv's remarkable sales growth.



The chart above from Vertiv's 2024 Investor Day presentation outlines the company's five-year sales projections through 2029. Overall, they anticipate revenue growth of 12–14% annually. But segments like liquid cooling are expected to grow at more than double that rate, driven by the increasing power demands of AI data centers.

Vertiv isn't just growing revenue – it's becoming more profitable. Thanks to economies of scale, the company's operating margins are set to expand significantly – from 19% this year to 25% by 2029. This margin expansion means profits will grow even faster than revenue.

Moreover, Vertiv's free cash flow conversion is expected to approach 100% of its operating profits. Using their guidance, Vertiv's operating profits should reach approximately $3.6 billion by 2029. That represents a compound annual growth rate of 23% – a stellar achievement for a company at the heart of one of the largest technological shifts in history.

With this kind of growth trajectory, a fair valuation for Vertiv would be around 30x profits by 2029. That puts the company's enterprise value at an estimated $108 billion, a 108% gain from its current valuation of $52 billion.

While the stock has already seen substantial gains over the past two years, this is a textbook case of a company growing into its valuation. For patient investors, waiting for a pullback – inevitable even in the best growth stories – could offer an excellent entry point.

Here at *The Near Future Report*, that's exactly what we plan to do. We will wait for a pullback before adding it to the portfolio. Vertiv represents one of the most compelling opportunities in the AI infrastructure space. It's a name you'll want to keep on your radar.

Company #2: Vistra (VST)

At first glance, Vistra might seem similar to the previous company we discussed – similar ticker symbols, both benefiting from the AI boom. But their businesses are entirely different.

At its core, Vistra is a power utility company.

Its retail segment – responsible for powering homes – makes up half of its revenue and only a quarter of its EBITDA. If you pay your electric bill to Dynegy or TXU Energy, those are Vistra's flagship retail brands.

But what really gets us excited is the other side of their business.

Vistra is also an Independent Power Producer (IPP). This means it generates its own power and sells it wholesale to companies or utilities with high energy demands. Unlike traditional utilities, IPPs like Vistra have the flexibility to optimize their generation portfolio and capitalize on price fluctuations in energy markets.

This is especially true in Texas, where about half of Vistra's energy assets are located. The Texas grid, managed by ERCOT (Electric Reliability Council of Texas), is infamous for wild price surges. During peak demand, electricity prices can spike as much as 1,600%, creating lucrative opportunities for power producers like Vistra.

But it's not just random price fluctuations driving the opportunity for Vistra. The electrification of everything is driving a huge demand for new electricity.

Today, data centers consume 508 terawatt hours (TWh) of electricity annually. That's the equivalent of the total consumption of Australia. Within a decade, that figure is expected to more than triple to 1,580 TWh – as much as India.

But data centers are just one part of the equation. There's a growing trend that will require up to four times more power generation than data centers…

This trend is the electrification of our vehicles.

According to the International Energy Agency (IEA), electric vehicles (EVs) demanded 110 TWh of electricity in 2023. But if countries meet their 2035 carbon emissions targets, that number will soar to nearly 2,000 TWh.

A move toward net-zero emissions would push EV demand even higher to an astounding 3,600 TWh. To achieve this, the world would need to generate enough new electricity to power the entire U.S.

All this is to say that Vistra will be able to sell as much power as it can generate. And they have been aggressively expanding.

Vistra's Recent Expansions

Vistra currently owns and operates 41 gigawatts (GW) of power generation assets. This makes them the largest independent power producer in the U.S. But the company isn't stopping there. It has another 3 GW of capacity under construction across the U.S., and it's making bold strategic moves to expand further.

One of Vistra's most notable recent moves was its acquisition of Energy Harbor. This $4.6 billion deal included $3.1 billion in cash and a 15% equity stake in Vistra Vision – a subsidiary focused on nuclear, renewable, and retail energy businesses. The acquisition added 4 GW of nuclear power generation capacity to Vistra's portfolio. That's where things get really interesting.

Nuclear power is in high demand, especially among AI data centers willing to pay a premium for reliable, carbon emissions-free electricity. Just look at the recent deal between Vistra's competitor, Constellation Energy Group (CEG), and Microsoft to bring the Three Mile Island nuclear reactor back online.

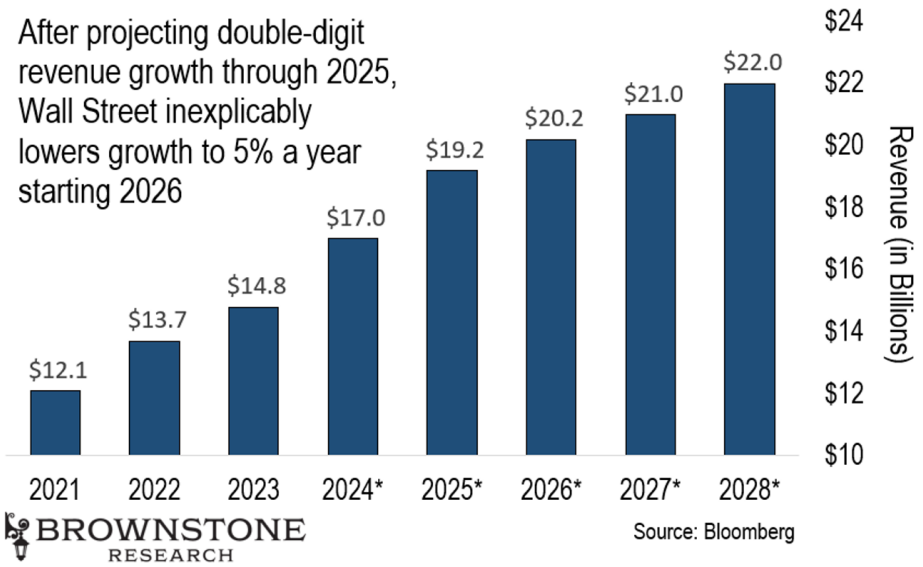
Microsoft is paying $100–115 per megawatt-hour (MWh) for nuclear energy. That's nearly double the standard rate in the PJM region for solar or nuclear power.

The AI boom means companies like Microsoft are scrambling to secure energy for their data centers, and they're willing to pay top dollar. Energy costs currently make up about 5% of the total expense of training and operating AI systems. Even if those costs doubled, they would still represent just 10% of the total. That's not a deal-breaker for Big Tech.

Vistra's newly acquired nuclear facilities are located in the same region as Three Mile Island, which makes it highly likely they'll secure similar premium rates. If that happens, these assets could generate up to $4 billion annually in revenue.

For context, Vistra is projected to make about $17 billion in total revenue for 2024. Adding $4 billion would represent a 23% increase. And while revenue is projected to grow, Wall Street's current revenue estimates for Vistra are likely far too conservative. This means Vistra's stock can keep on rising as they beat these targets.

Vistra (VST) Revenue



Vistra (VST) EBITDA

Rising Revenue and Efficiency

Wall Street's forecasts show Vistra's revenue growing 16% in 2024 and 14% in 2025 but slowing to just 5% annually in subsequent years. This doesn't make any sense.

After all, we know that all these huge data centers are coming online. And the increased power demands required for electric transportation?

No way. These projections underestimate the potential for long-term growth.

And Vistra's growth doesn't come at the cost of declining profitability. Vistra is the most capital-efficient company in the IPP sector.

In 2023, its EBITDA margin stood at 32%, far outpacing competitors like Constellation Energy Group (CEG) at 17% and NRG Energy (NRG) at 12%. These superior profit margins and rising revenues have Vistra's EBITDA surging, with the potential for significant upside in the years ahead.

But we can also see the growth slowing in future years – which we find unlikely.

If Vistra continues to expand its generating capacity and pursue strategic acquisitions, it's entirely plausible that the company could reach $10 billion in EBITDA by 2028. Using a conservative 10x EV/EBITDA valuation – consistent with Vistra's historical trading range – would give the company a $100 billion enterprise value by the end of 2028.

With Vistra's current valuation sitting at $75 billion, that implies a 33% gain. We typically look for gains higher than that – especially over four years.

It may be prudent to wait for a pullback before initiating a position. But this is a rock-solid growth company with little to no downside that deserves a spot on every investor's radar.

The combination of rising demand for clean energy, operational efficiency, and strategic growth puts both Vertiv and Vistra in an enviable position to thrive throughout the AI boom.

Definitely keep your eye on these two companies in the years to come.

Regards,

Jeff