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THE PREHN INSTITUTE | RESEARCH

Published May 29, 2026

Bigger Than Palantir & Nvidia: The AI Energy Boom

Five stocks across the full value chain — from nuclear fuel to data center cooling

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REPORT SCOPE

Plain-English explanation of the video.

RATING

None

PRICE TARGET

None

BOTTOM LINE:

AI is the most power-hungry technology humans have ever invented, and the United States grid does not have enough electricity to feed it. U.S. data center power demand is projected to grow roughly 4x by the early 2030s. No combination of solar, wind, and batteries can fill that gap in time. The only 24/7, carbon-free baseload answer is nuclear. We present five companies spanning the full AI energy value chain — from uranium logistics to data center thermal management — and a three-step framework for evaluating each. This report contains no buy/sell recommendations; it is designed to educate, not to prescribe.

About Felix Nikolas Prehn and The Prehn Institute

Felix Nikolas Prehn

Felix Nikolas Prehn is an economist and former investment banker. He writes and lectures on how the financial markets work, with a focus on how ordinary savers can protect what they have built.

The Prehn Institute

Felix Nikolas Prehn is the founder of The Prehn Institute. It publishes research on the financial markets and provides instruction in how they work. It gives no financial advice.

It takes no sponsorships and no endorsements, ever. So its work answers to its readers and to nobody else.

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Investment Thesis: The AI Electricity Bottleneck

The Core Problem. AI is the most power-hungry technology humans have ever invented. The world does not have enough electricity to feed it. Palantir writes the software. Nvidia builds the brains. But neither one works without electricity — and the United States grid is already buckling under the strain.

The Scale of the Gap. U.S. data center power demand is projected to grow roughly 4x by the early 2030s. There is no scenario — solar, wind, batteries combined — that fills that hole in time. The only 24/7, carbon-free baseload energy source capable of meeting the demand is nuclear.

Where Smart Money Looks. Retail investors tend to focus on chips because chips are easy to understand. But the institutional question is different: when everyone is buying shovels in a gold rush, the smart money asks — where do the shovels get sharpened? Where do they get powered? Nvidia is the shovel. The five companies in this report are the gold mine, the pickaxe sharpener, and the bloodstream that keeps the whole operation alive.

The Simple Analogy. Imagine your kid built a giant Lego city. Beautiful. Massive. Lights, trains, skyscrapers. And then you realise — they plugged it all into one outlet, and the breaker just blew. That outlet is the U.S. grid. Those Legos are the data centres. And the breaker is already blowing.

The Implication. Without electricity, a $4,000 Nvidia chip is a paperweight. We believe the next leg of the AI boom belongs to the companies that solve the power problem — and this report maps the five layers of that value chain.

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The 3-Step Evergreen Framework

Stocks change. Frameworks do not. Before examining any individual name, we apply the same three-step process to each.

Step 1 — Identify the Real Bottleneck. Always ask: what is the constraint that, if removed, unlocks everything else? In AI right now, the constraint is not chips. It is not data. It is electricity.

Step 2 — Map the Value Chain. Every bottleneck has a stack of companies that solve different layers of the problem. If you only buy one layer, you are gambling. If you own all five, you own the entire value chain.

Step 3 — Time the Entry Using Pattern Analysis. Every stock lives in one of four patterns: Pattern 1 (Basing — boring sideways), Pattern 2 (Advancing — uptrend, where you make money), Pattern 3 (Topping — looks strong but rolling over), Pattern 4 (Declining — the crash). We only buy in Pattern 2. We sell when it enters Pattern 3. We never buy in Pattern 4 because it looks "cheap."

Most investors who suffered losses in the nuclear names during late 2025 bought in late Pattern 2 or early Pattern 3 — which is why they got crushed. The framework would have told them to sell, not hold.

THE VALUE CHAIN AT A GLANCE

VRT

DATA CENTER INFRASTRUCTURE

VICR

POWER CONVERSION

SMR

LICENSED FIRST-MOVER

OKLO

REACTOR DESIGN

NNE

FUEL & LOGISTICS

Exhibit 1: The AI Energy Value Chain — five layers, five tickers, one ecosystem.

STOCK #1 — NANO NUCLEAR ENERGY (NNE)

LAYER 1: FUEL & LOGISTICS

The Business. Most people think Nano Nuclear is just trying to build a tiny reactor. That is only half the story. Nano Nuclear just acquired Secured Transportation Services LLC for $13 million — a company that physically moves spent nuclear fuel, HALEU fuel, and advanced reactor components.

The Picks-and-Shovels Insight. Imagine the entire small reactor industry is about to explode. Every single reactor needs fuel delivered to it. And every single reactor needs spent fuel taken away from it. Nano Nuclear just bought the delivery truck for the entire industry. In the gold rush, the people who got richest were not the miners — they were Levi Strauss selling jeans and the railway companies hauling the gold out. Nano Nuclear just bought the railway.

Financial Snapshot. Still pre-revenue. Over $550 million in liquidity — enough runway to survive a long winter.

Risks. PRE-REVENUE VOLATILE RETAIL SENTIMENT This is not a "put your house on it" stock — it is a "put your gambling budget on it" stock. Position-size accordingly.

Framework Check. Is it in Pattern 2? Look at the 30-week moving average. If price is above it and the line is sloping up, you are allowed to buy. If not

- ✓ wait.

STOCK #2 — OKLO (OKLO)

LAYER 2: REACTOR DESIGN

The Business. Oklo designs next-generation small modular reactors (SMRs). The U.S. Department of Energy just selected Oklo for advanced negotiations under the Surplus Plutonium Utilisation Program — meaning the U.S. government is effectively giving Oklo a head start on fuel supply.

The CEO's Words. CEO Jacob DeWitte called this a "pathway to use existing surplus material as bridge fuel for advanced reactors to bring more reactors online sooner."

The Customer Pipeline. Oklo has partnerships with Meta, Nvidia, and Equinix — a 14-gigawatt customer pipeline. The biggest technology companies on earth want their reactors.

Financial Snapshot. Roughly $2.5 billion in cash and marketable securities. They are not running out of money any time soon.

Catalyst Watch. First reactor target around July 2026 for the Groves test reactor criticality milestone. Commercial deployment is still years away.

Risks. PRE-REVENUE DILUTION HISTORY Oklo had a violent run in 2025, peaked in October, then ran two large stock offerings that diluted shareholders. The stock gave back over 65% of its gains from the peak.

Framework Check. Apply the 3-step framework. Do not chase. Wait for Pattern 2.

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Stock #3 — Nuscale Power (Smr)

LAYER 3: LICENSED FIRST-MOVER

The Business. NuScale Power is the only company in the United States with Nuclear Regulatory Commission design certification for a small modular reactor. Nobody else has that piece of paper. Imagine 50 companies want to sell hamburgers, but only one has a permit from the city. Even if that company is struggling, they have a head start that costs millions of dollars and ten years of work to replicate.

The Pipeline. Tennessee Valley Authority agreement. Romanian RoPower project. These are real customers with governmental backing.

The Brutal Reality. Operational deployment target is 2032–2033. That is a long time to wait. If you cannot hold for 3–5 years, this is not your stock.

The Fluor Exit. Their largest shareholder, Fluor Corporation, sold most of its 39% stake — creating enormous selling pressure throughout early 2026 and contributing to a drawdown of roughly 80% from the October 2025 peak.

Why That Is Now a Positive. Once the seller is gone, the supply pressure clears. That is a classic setup for a Pattern 1 to Pattern 2 transition.

Risks. PRE-REVENUE LONG TIMELINE CAPITAL-INTENSIVE The regulatory moat is real, but monetisation is years away.

STOCK #4 — VICOR CORP (VICR)

LAYER 4: POWER CONVERSION

The Business. Vicor designs power conversion modules — tiny chips that take electricity from the wall and convert it into the exact voltage an Nvidia GPU needs. Every Nvidia chip needs one. Every. Single. Chip.

The Simple Analogy. Every Nvidia chip drinks electricity like a kid drinks juice. But the juice from the wall is too strong — it would fry the chip. Vicor's job is to be the adapter that turns wall juice into chip juice.

Recent Developments. Vicor raised its 2Q revenue guidance to $142 million from $126 million. They also signed a new licensee for their power system technology, which adds product revenues and royalties — the dream business model: getting paid twice.

Why This One Is Different. Unlike Oklo and NuScale, Vicor is profitable today. Real revenue. Real customers. Real margins. Boring is the entire point.

Risks. LOWER UPSIDE CONCENTRATION Less explosive upside than the SMR names, but far less drawdown risk. This is a "sleep at night" stock.

STOCK #5 — VERTIV HOLDINGS (VRT)

LAYER 5: DATA CENTER INFRASTRUCTURE

The Business. Vertiv builds the cooling systems, power distribution, and thermal management for AI data centres. If Vicor is the adapter, Vertiv is the entire electrical room and air-conditioning system for the building.

The Scale of the Problem. An Nvidia chip running flat-out gets hotter than a stovetop burner. Multiply that by 100,000 chips per data centre. Without Vertiv, every AI data centre in America literally melts.

The Cisco Comparison. Vertiv is to the AI infrastructure boom what Cisco was to the internet boom. They sell to everyone — Microsoft, Amazon, Google, Meta. They do not care which company wins. They sell to all of them.

Financial Snapshot. Already cash-flow positive. Already revenue-growing. Already profitable.

Risks. VALUATION CROWDED TRADE It is already up significantly from 2022. Do not chase the top. Apply the framework — wait for a healthy pullback, then buy in Pattern 2.

COMPARATIVE SNAPSHOT

Oklo Layer 2 — Reactor Design Pre-revenue

Equinix) history

NuScale Power

Layer 3 — Licensed First- Mover

Pre-revenue Not disclosed Only NRC-certified SMR design in the U.S.

2032–2033 deployment timeline

Vicor Corp

Layer 4 — Power Conversion	Layer 5 — Data Center Infra
Profitable	Profitable
Revenue- funded	Cash-flow positive
Power modules essential for every GPU; licensing model	Vendor-agnostic; sells to all hyperscalers
Lower upside potential	Valuation / crowded positioning
Vertiv Holdings	

Exhibit 2: Five-stock comparative snapshot across the AI energy value chain.

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VRT

Lower-risk Exposure: Sector ETFs

For investors who prefer diversified exposure without single-stock concentration risk, we highlight three relevant ETFs that span the themes discussed in this report.

ETF	Ticker	Exposure	Why It Is Relevant
Global X Uranium ETF	URA	Uranium miners, fuel cycle, nuclear utilities	Broad exposure to the nuclear fuel chain — covers Layers 1–3 thematically
VanEck Uranium+Nuclear Energy ETF	NLR		
		Nuclear utilities, uranium, SMR	
		developers	
			Includes both legacy nuclear operators and next-gen reactor
			names
Global X Data Center Infrastructure & Digital			
Infrastructure ETF			
	DTCR		
		Data centre REITs, cooling, power	
		distribution	
			Covers Layer 5 — the physical infrastructure behind AI
			compute

Exhibit 3: ETF alternatives for diversified thematic exposure.

HOW TO AVOID REPEATING THE 2025 MISTAKE

In 2025, investors got the idea right and the timing completely wrong. The nuclear thesis was sound — Oklo tripled, NuScale doubled, Nano Nuclear surged 115%. And then every single one of them crashed. The thesis did not break. The timing did.

We observe three disciplines that would have changed the outcome:

1. Buy only in Pattern 2. Not Pattern 3 (topping). Not Pattern 4 because it looks "cheap." Pattern 2 — confirmed uptrend with the 30-week moving average sloping upwards.
2. Position-size for asymmetry. A 5x winner with 2% of your portfolio still doubles your account. A wipeout with 30% of your portfolio destroys you.
3. Have a written exit rule before you enter. Most people fail because they buy with a plan and sell on emotion.

KEY RISK FACTORS

Pre-Revenue Concentration. Three of five names (NNE, OKLO, SMR) are pre-revenue. All thesis-driven positions require extended time horizons and disciplined position-sizing.

Regulatory Risk. Nuclear energy is among the most heavily regulated industries globally. Delays, design re-certifications, and political shifts can delay timelines by years.

Dilution. Pre-revenue companies fund operations through stock offerings. Oklo's two large offerings in late 2025 materially diluted existing shareholders. Further offerings are possible across all three pre-revenue names.

Execution and Timeline. NuScale's commercial deployment target is 2032–2033. Oklo's first test reactor criticality is targeted for July 2026 but commercial scale is further out. These are multi-year theses that require patience.

Sentiment Swings. Nuclear stocks attract retail momentum. Violent rallies followed by sharp corrections (as observed in late 2025 and early 2026) are characteristic of this space. Investors should expect volatility.

Technology Risk. Small modular reactor technology remains unproven at commercial scale. There is no guarantee that any of the reactor designs will achieve cost-effective deployment.

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"How to Fix Bad Timing Once and For All"

The full system — exact entry rules, exact exit rules, position-sizing formula, and the chart patterns to watch — taught live by Felix Prehn.

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REFERENCES

Sources & disclosures

SOURCES

1. All data sourced from The Winston App at app.goatacademy.org

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