



Integrated Thermal Innovation and and Energy Resilience

The SC CoGen Technology Ecosystem

Modern industry demands a trifecta of resources that the current grid cannot supply.



Baseload Reliability

Industries require 24/7 power, exposing the critical intermittency flaw in traditional renewables.



Zero-Emission Heat

Process heating requires intense thermal output, currently forcing a reliance on burning diesel, coal, and natural gas.



Resource Conservation

High-demand applications face severe spatial and water constraints, halting development in arid regions.

Four distinct technologies engineered to operate as a single, resilient ecosystem.



Geothermal Energy

Baseload, subsurface heat extraction for high-demand continuous power.



Compound Concentrated Solar

Advanced optics generating high-temperature thermal energy above ground.



Silicon Thermal Batteries

Pure silica sand acting as a massive thermal capacitor for dispatchable storage.



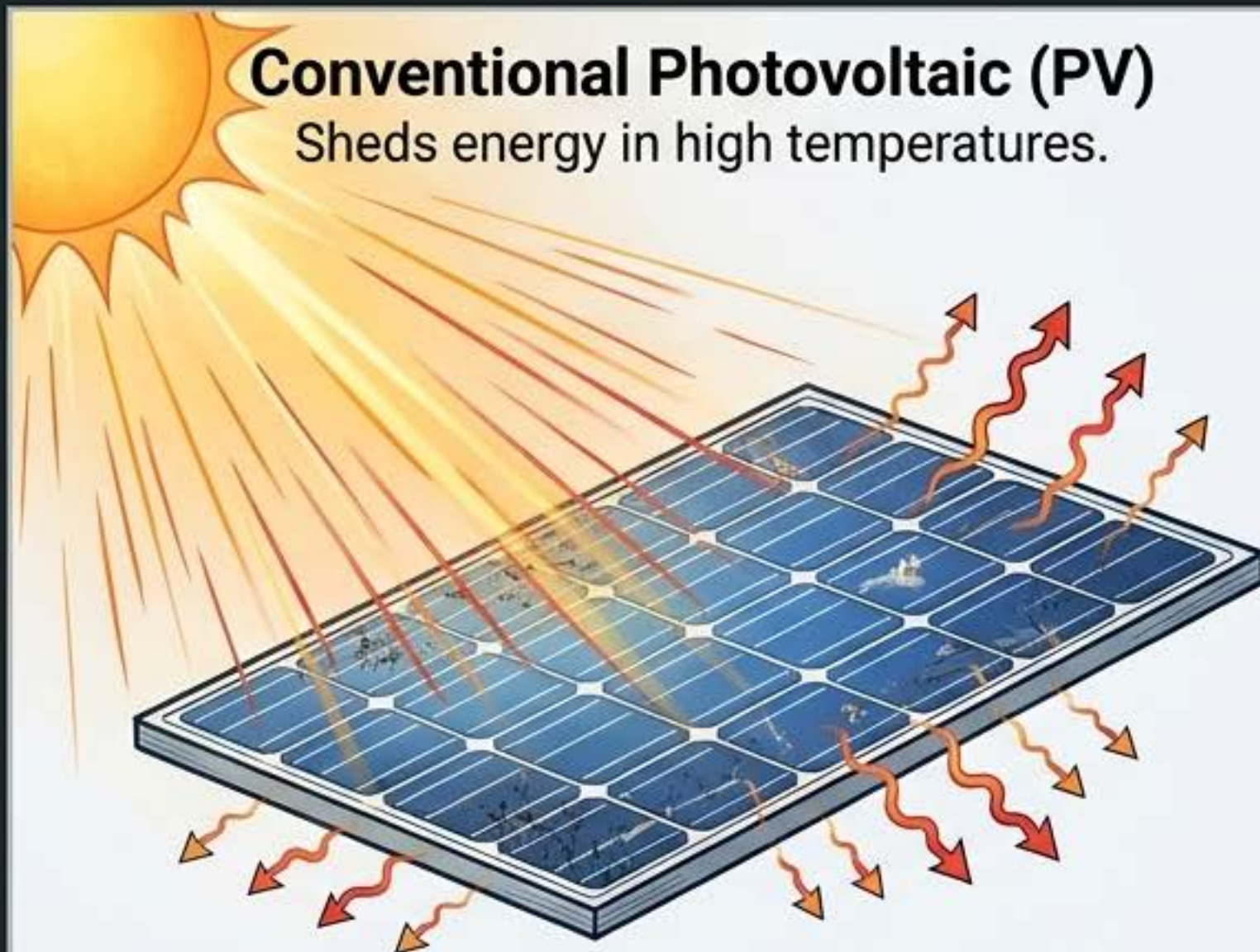
Advanced Turbine Cooling

Aerospace-derived supercritical CO2 turbomachinery for maximum conversion efficiency.

Compound Concentrated Solar captures the heat index rather than relying on UV light.

Conventional Photovoltaic (PV)

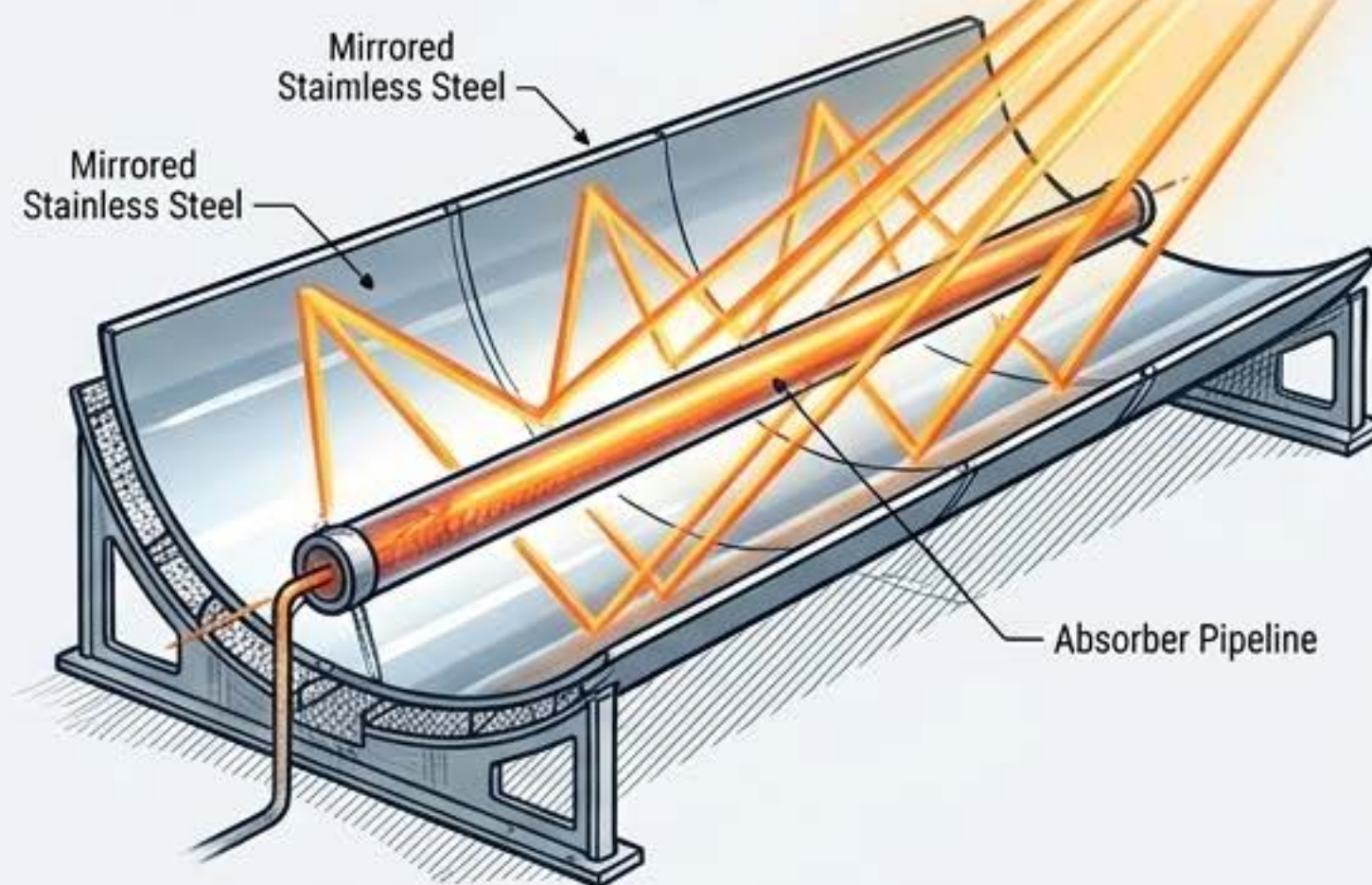
Sheds energy in high temperatures.



Inefficiency and degradation under extreme heat.

Compound Concentrated Solar (CCS)

Thrives on the heat index.



Advanced optics capture and store high-grade thermal energy.



Performance in Extreme Heat:

Absorbs and stores excess thermal energy instead of failing.



Extreme Density:

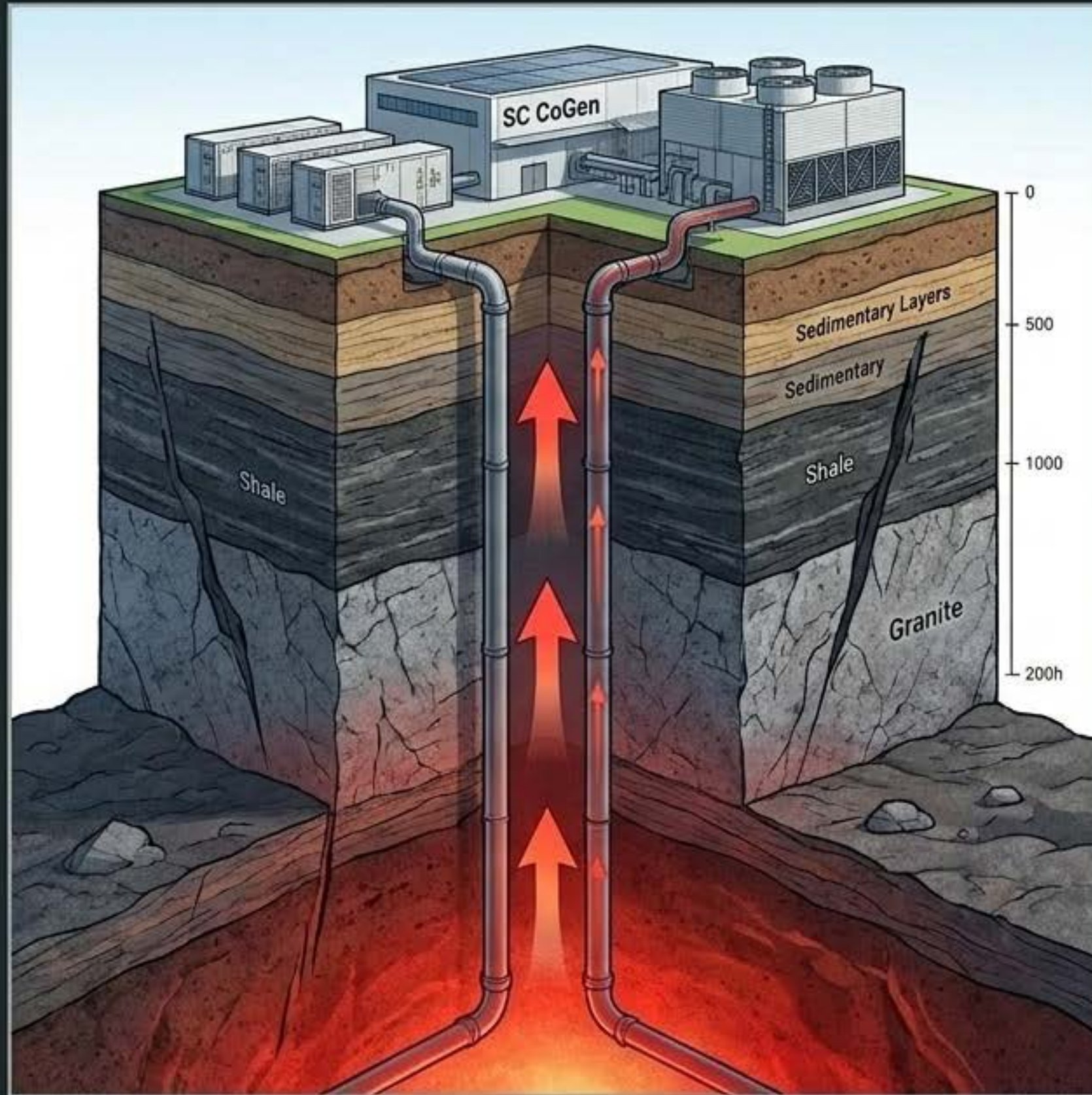
50+ megawatts of power from just a 5-acre installation footprint.



Durability:

Custom 16-gauge mirrored stainless steel troughs resist high winds.

Geothermal extraction delivers stable, 24/7 low-carbon heat and baseload power.



Massive Scale

Capable of generating **65 to 70 megawatts per unit**, providing true **baseload reliability** that significantly surpasses standard solar output.

Lifecycle Expertise

Full-lifecycle management: from resource evaluation and reservoir engineering to wellfield development and binary cycle surface facilities.

Current Deployment

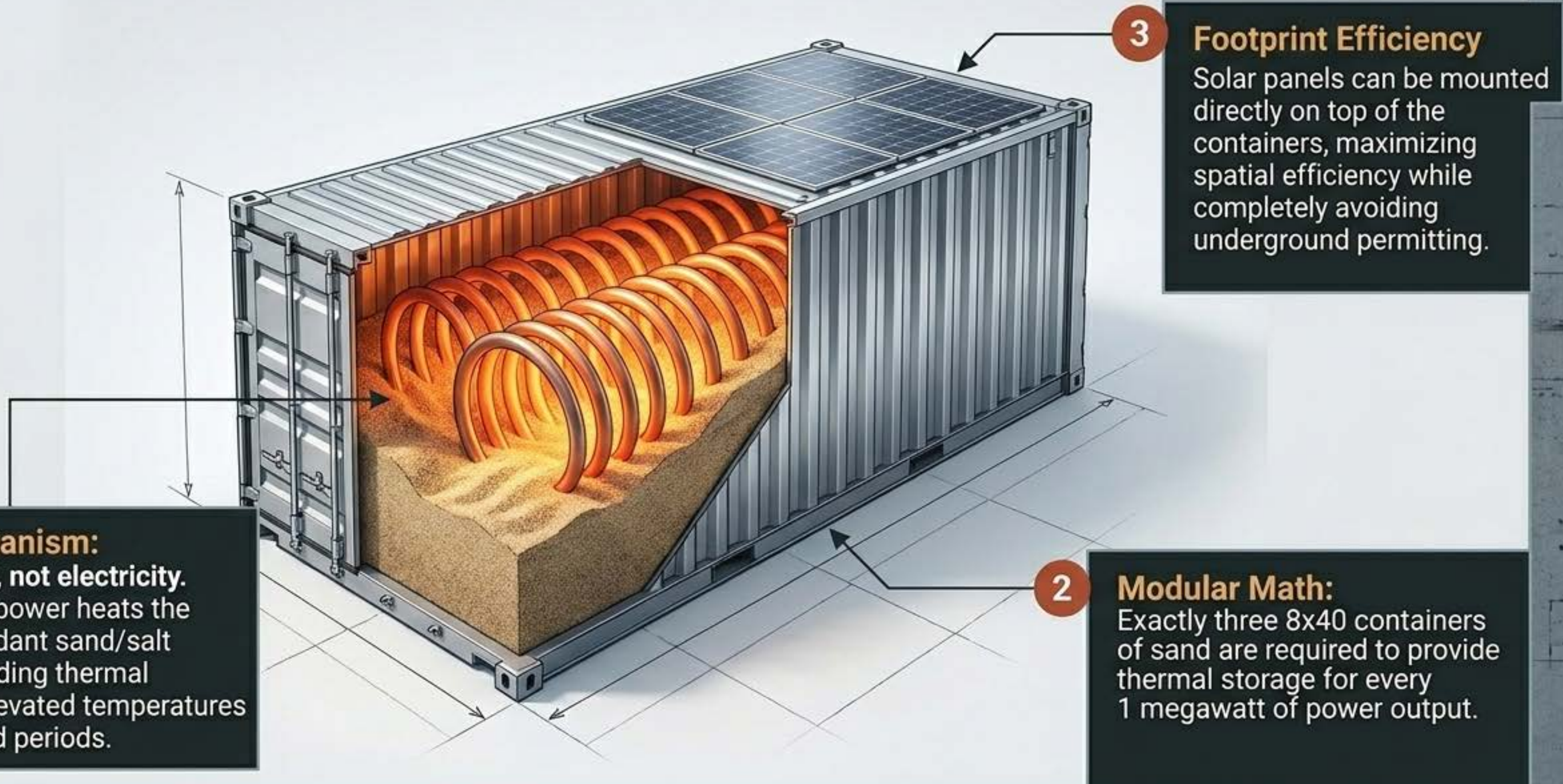
Active rollout underway in key U.S. markets including Missouri and Texas, replacing fossil fuels for heavy manufacturing and district energy.

Strategic deployment: Balancing rapid modular storage with massive baseload generation.

	Silicon Thermal Batteries	Geothermal Wells
Primary Role	Energy Storage & Dispatch	24/7 Baseload Generation
Deployment Geography	Above-ground, portable shipping containers	Deep subsurface drilling and reservoir extraction
Permitting & Complexity	Fast, minimal environmental permitting	Complex, intensive lifecycle and wellfield planning
Output Scale	Modular 1 MW increments	65 to 70 MW high-capacity units

The Common Thread: Both seamlessly integrate into SC CoGen’s supercritical CO₂ turbomachinery for highly efficient power conversion.

Pure silica sand functions as a massive, modular thermal capacitor.



Aerospace-derived turbomachinery converts heat to power with zero emissions.

The Trigger: A heat source (geothermal, solar, or sand battery) exceeding 250 degrees Fahrenheit enters the system.

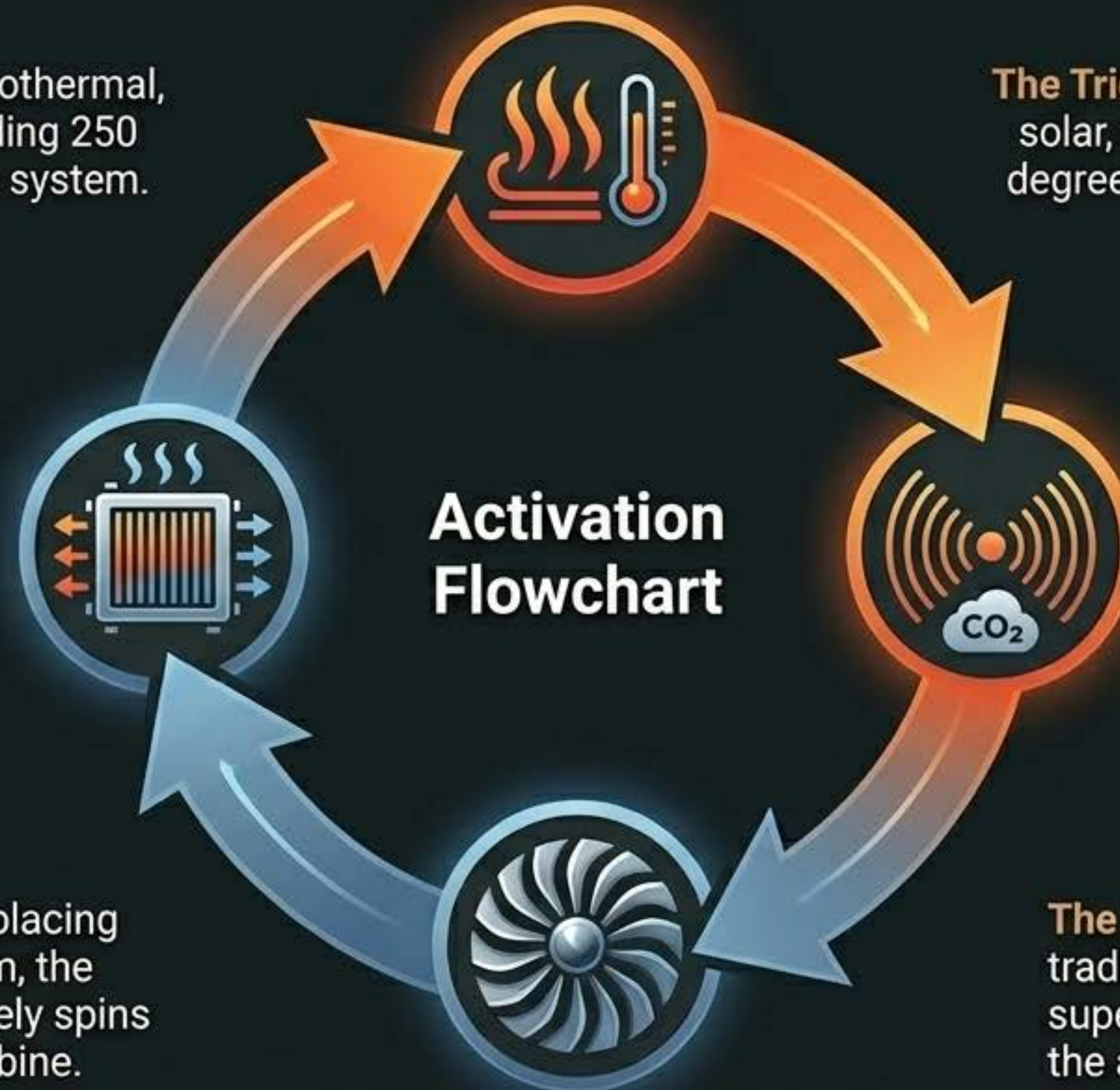
The Trigger: A heat source (geothermal, solar, or sand battery) exceeding 250 degrees Fahrenheit enters the system.

The Loop: The working fluid is re-cooled and endlessly reused in a completely closed-loop cycle, resulting in high thermal efficiency.

Supercritical State: The CO₂ becomes supercritical, expanding under intense pressure to act as the mechanical driver.

The Driver: Completely replacing traditional water or steam, the supercritical fluid aggressively spins the aerospace-grade turbine.

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Carbon dioxide provides overwhelming economic and operational advantages over traditional refrigerants.



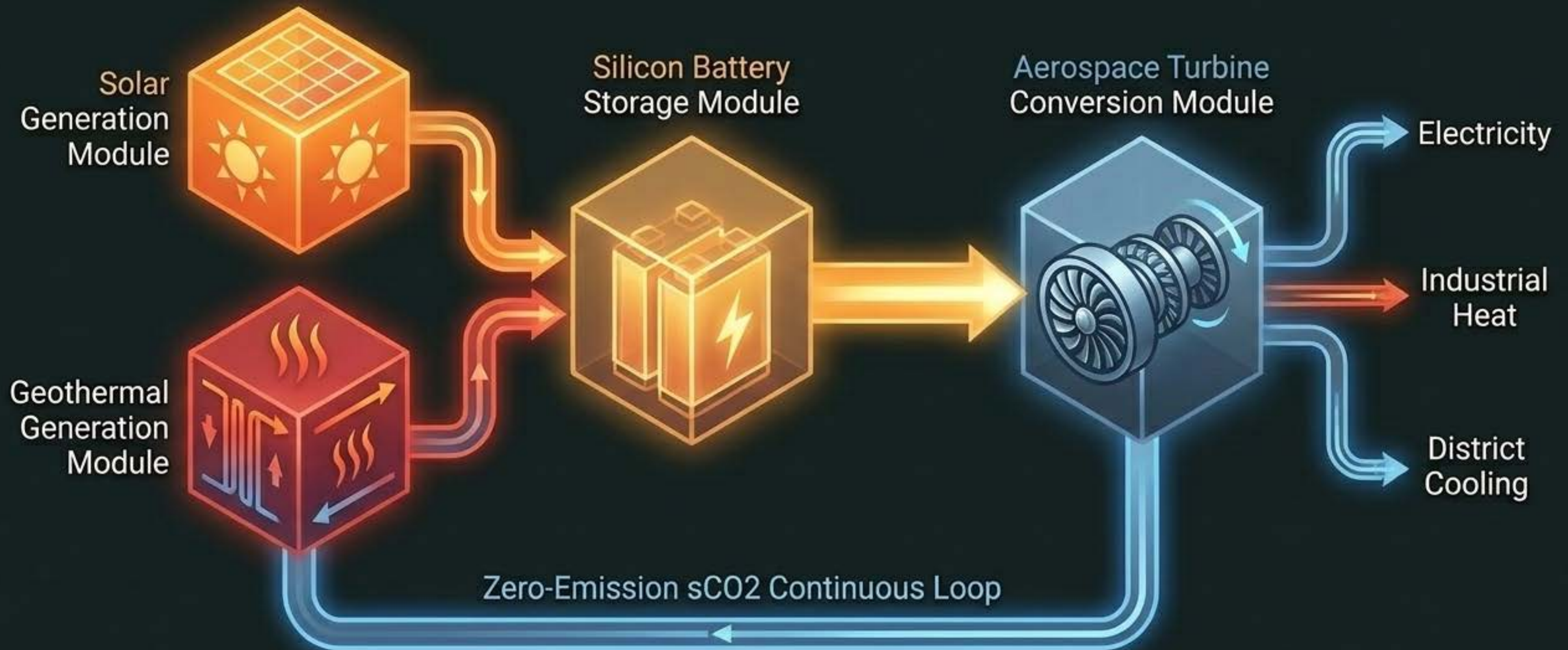
Regulatory Compliance

CO₂ is widely available, completely non-toxic, and entirely bypasses the strict environmental regulations governing chemical and chlorinated refrigerants.

Combined Heat & Power (CHP)

Beyond power generation, condensed CO₂ enables robust air conditioning and refrigeration, allowing for true Combined Heat, Cooling, and Power from a single system.

The **Closed-Loop Energy Engine:** Intermittent inputs become perfect, dispatchable output.



Beyond power: The system generates highly valuable environmental byproducts.



Water Purification & Desalination

- Condensing exhaust from gas turbines enables massive water recovery.
- Proven capability to recover up to 22,000 acre-feet of agricultural water from turbine effluent.
- Highly economically viable for large-scale seawater desalination.



Oil Sludge Remediation

- High-heat system efficiently cleans hazardous sludge from operational oil fields.
- Integrated centrifuge processing separates out valuable minerals.
- Transforms environmental liability into a net-positive revenue stream (active in Texas).

Unlocking stalled AI infrastructure: The data center dilemma.



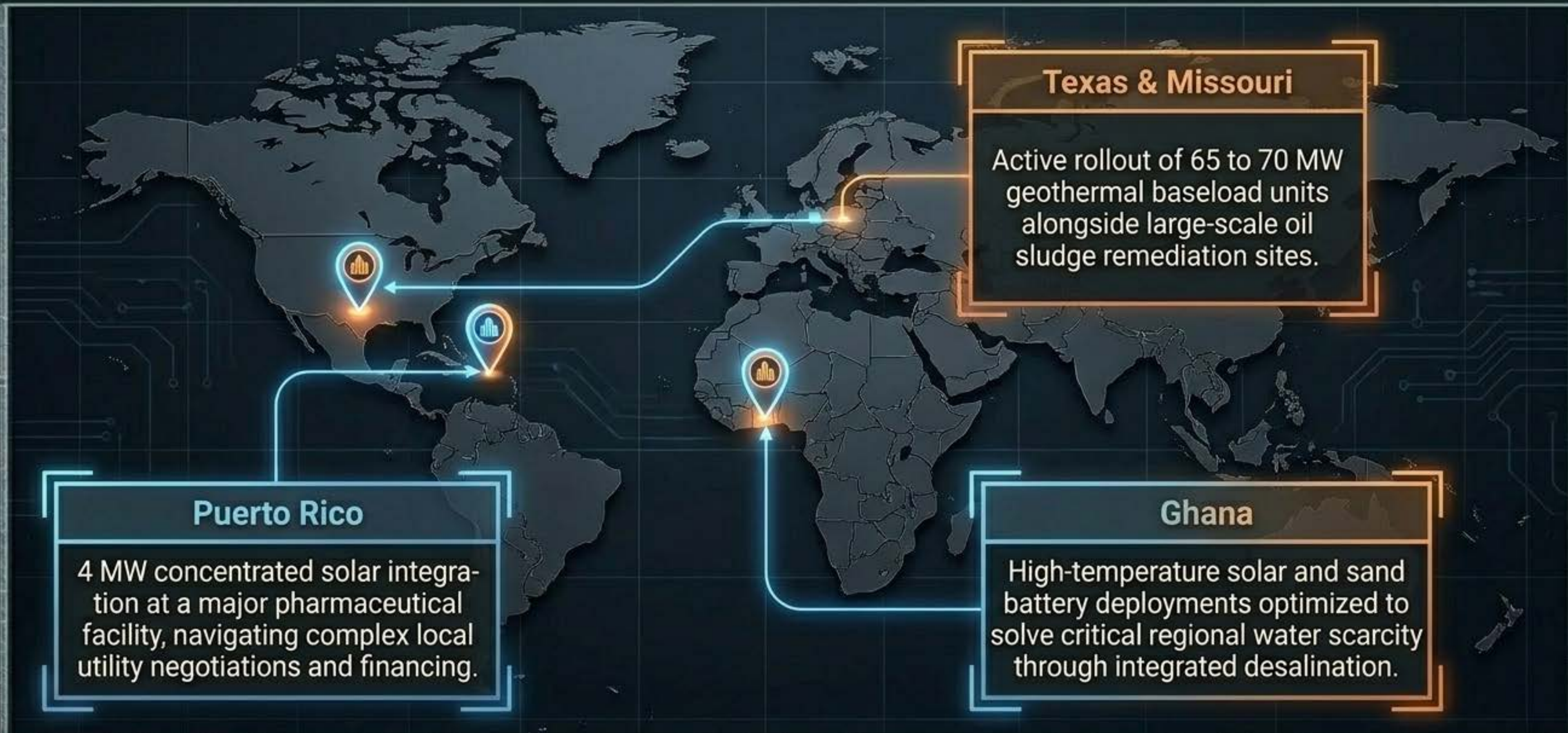
REJECTED

Data centers currently face a massive 80% rejection rate from municipalities due to insufficient grid power and extreme water consumption limits. In drought-prone regions like Lake Tahoe, public grid tension is halting development.



For a planned 9.9 GW natural gas turbine data center, SC CoGen provides high-efficiency turbine cooling while recovering massive amounts of agricultural water from the effluent, completely reversing local opposition and unlocking grid approval.

A globally scalable architecture, adaptable to local resource constraints.



The Financial Engine: Superior sustainability
driven by unmatched unit economics.

\$1.5M

CapEx per Megawatt. Allows for highly predictable capital modeling, such as a ~\$75M build for a massive 50 MW, 5-acre solar and thermal installation.

\$0.15

Revenue per kWh. Reliably secured under long-term, 20-year operational energy delivery contracts.

1 Year

System Payback Period. Accelerated dramatically by high thermal efficiency and ultra-low \$0.50/lb supercritical working fluid costs.

19 Years

Pure Profit Lifecycle. Ensuring long-term operational cost stability and unprecedented ROI for institutional infrastructure investors.



Decarbonized. Dispatchable. Highly Profitable.

SC CoGen Technology is establishing a vastly superior, closed-loop thermal architecture. The capital is ready, the market demand is unprecedented, and the technology is proven.

Partner with us for early resource evaluation, site feasibility studies, and full project lifecycle deployment.