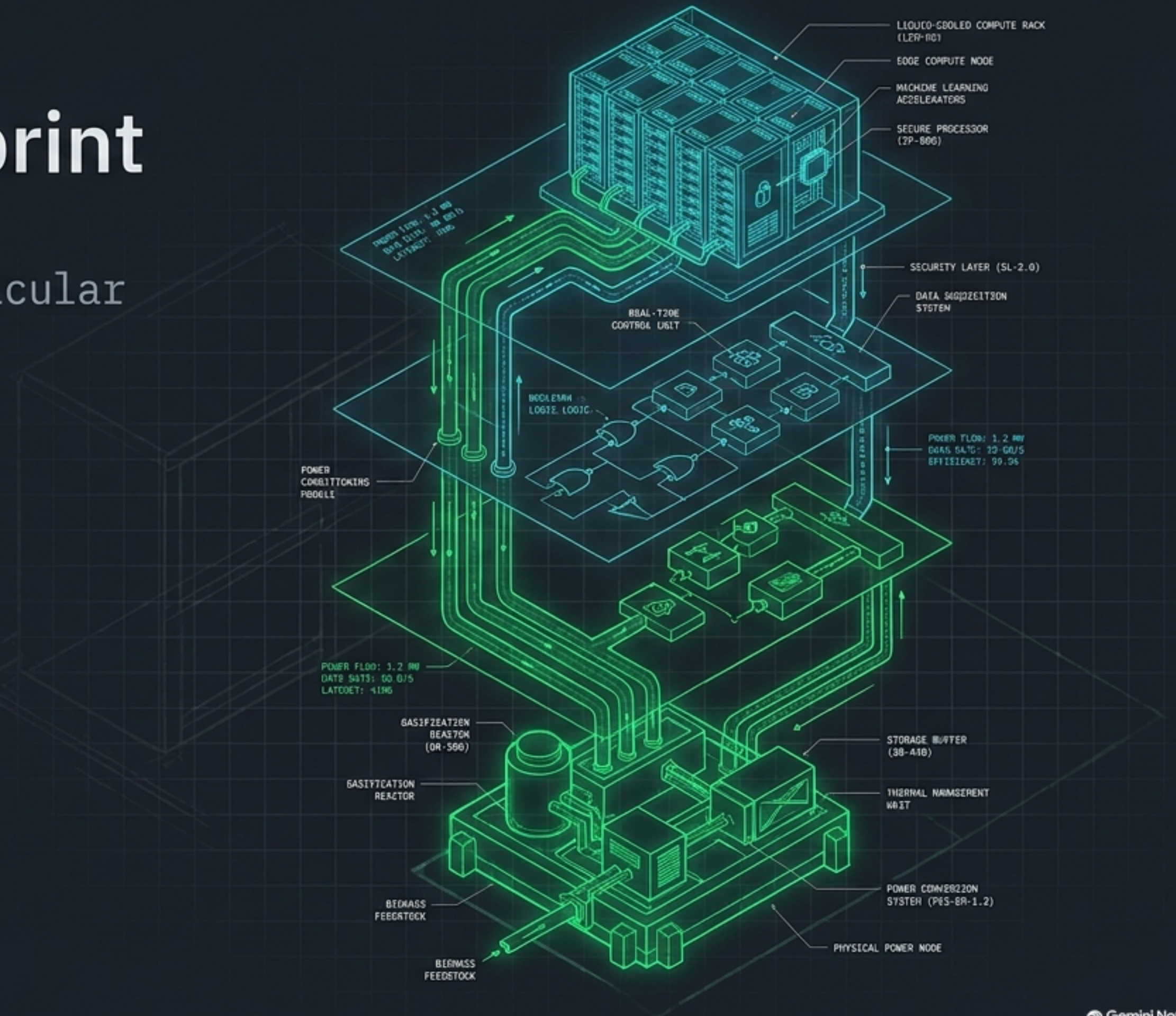


The Energy Autonomy Blueprint

Engineered Infrastructure
Sovereignty via the DeReticular
Generation 5 Architecture.

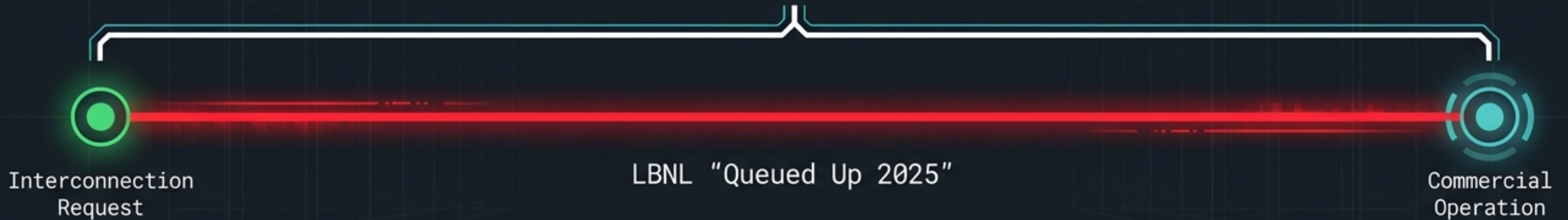
DOC: SSOT-ENG-001
STATUS: Evidence-Qualified (V2)
DOCTRINE: Local Autonomy. National
Security. Total Sovereignty.



Power Availability is the Bottleneck

> 4 YEARS

(Recent median duration for projects built 2018-2024)



Utility interconnection queues for grid-tied energy and data centers paralyze deployment. The DeReticular solution abandons the queue entirely. By matching local generation directly with protected controls and captive workloads behind the meter, Generation 5 compresses four fragmented procurement decisions into a single, sovereign deployment.

The Infrastructure Paradigm Shift

Legacy Public Utility Model

Deployment Time

Multi-year regional
transmission queues

System Architecture

Vulnerable to single
points of failure

Data Security

Centralized cloud
telemetry (Vulnerable)

Power Economics

Standard wholesale
feed-in tariffs

DeReticular Sovereign Blueprint

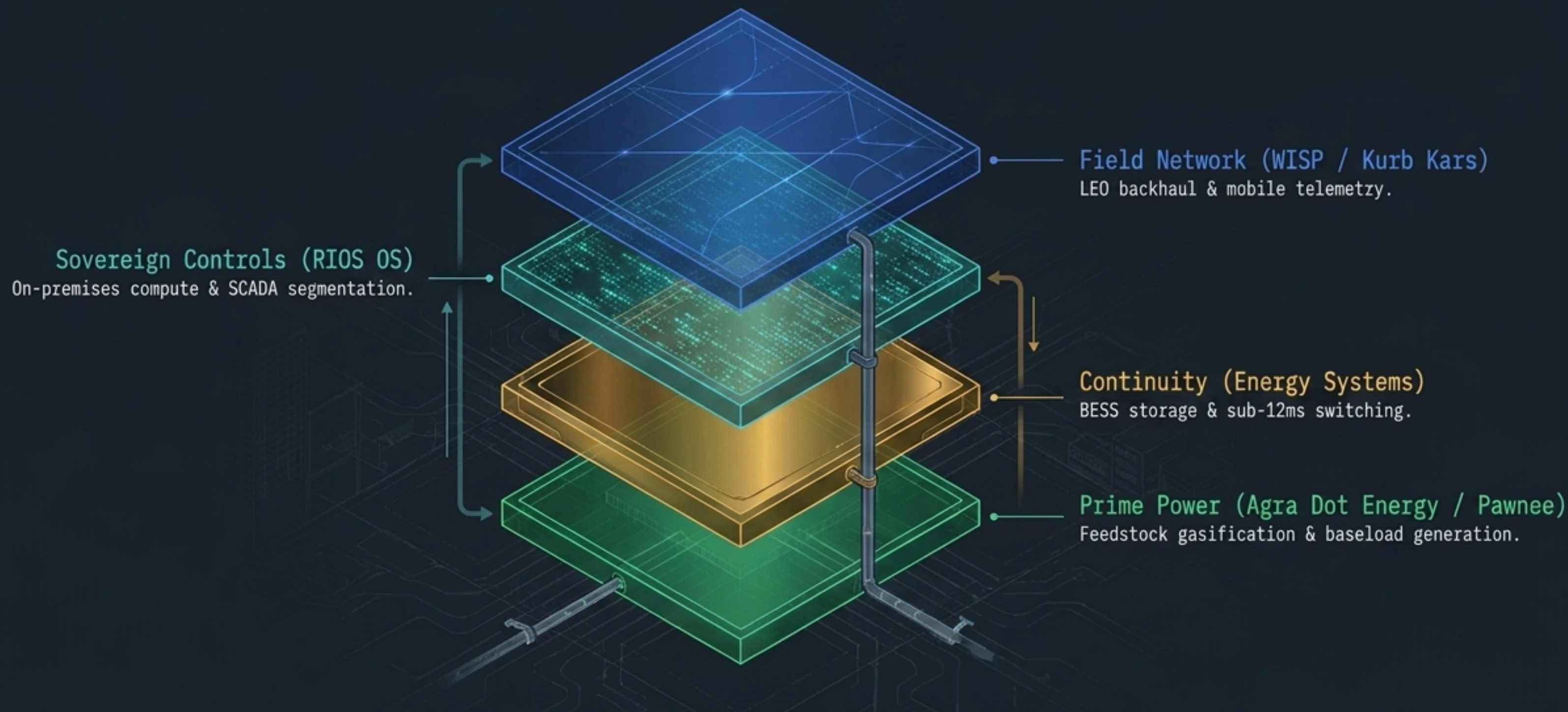
Targeted 60-90 days
(Behind-the-meter)

Sub-cycle island resilience
(Static transfer switching)

**Segmented, locally autonomous
OT controls** (TPM 2.0)

High-value compute arbitrage
(Modeled 16.6x multiple)

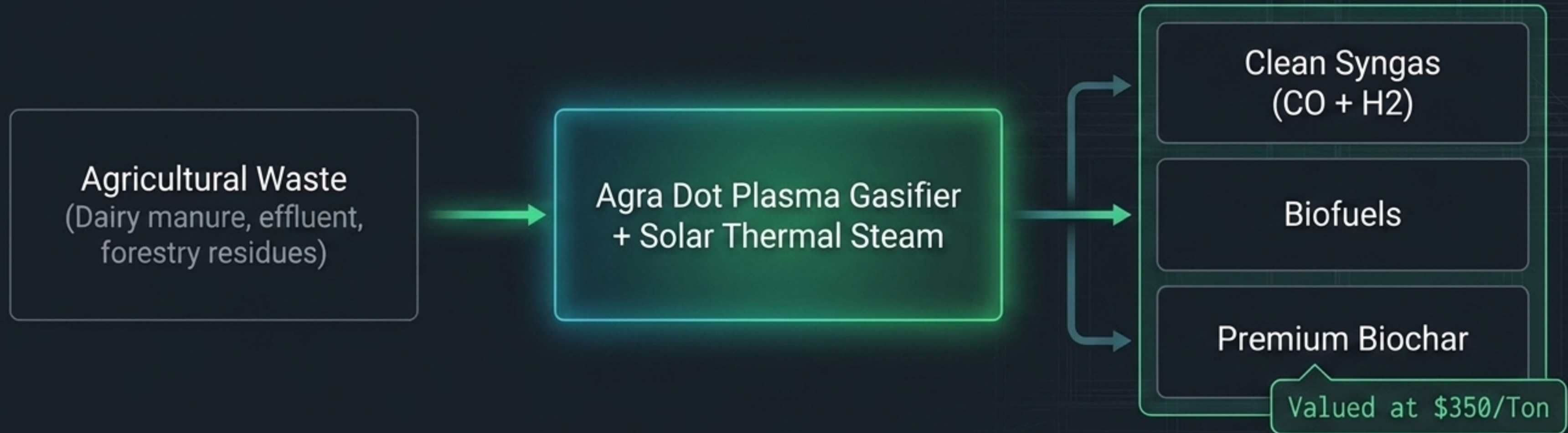
The 4-Layer Reference Model



DeReticular is an orchestration platform. The commercial advantage lies in the integration: unified behind-the-meter power, segmented compute, and secure communications, all designed to maintain operational continuity when public infrastructure degrades.

The Engine of Autonomy: Agra Dot Energy

"Agriculture can both produce and consume energy."



Agra Dot Energy bypasses grid delays by converting stranded agricultural liability into sovereign prime power and bio-assets. This localized waste-to-energy architecture achieves a modeled levelized prime power target of $\$0.038 / \text{kWh}$.

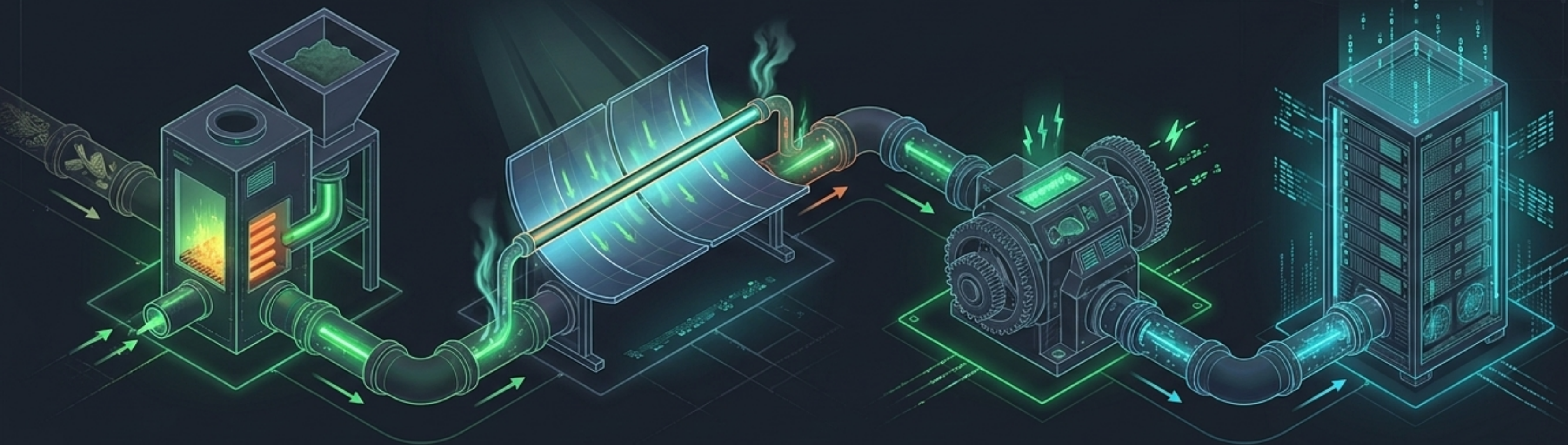
The Full-Spectrum Prime Power Stack

[01] Plasma Biomass
Gasification Unit
(Input)

[02] 80x Parabolic 350°C
Steam Tube
(Thermal Injection)

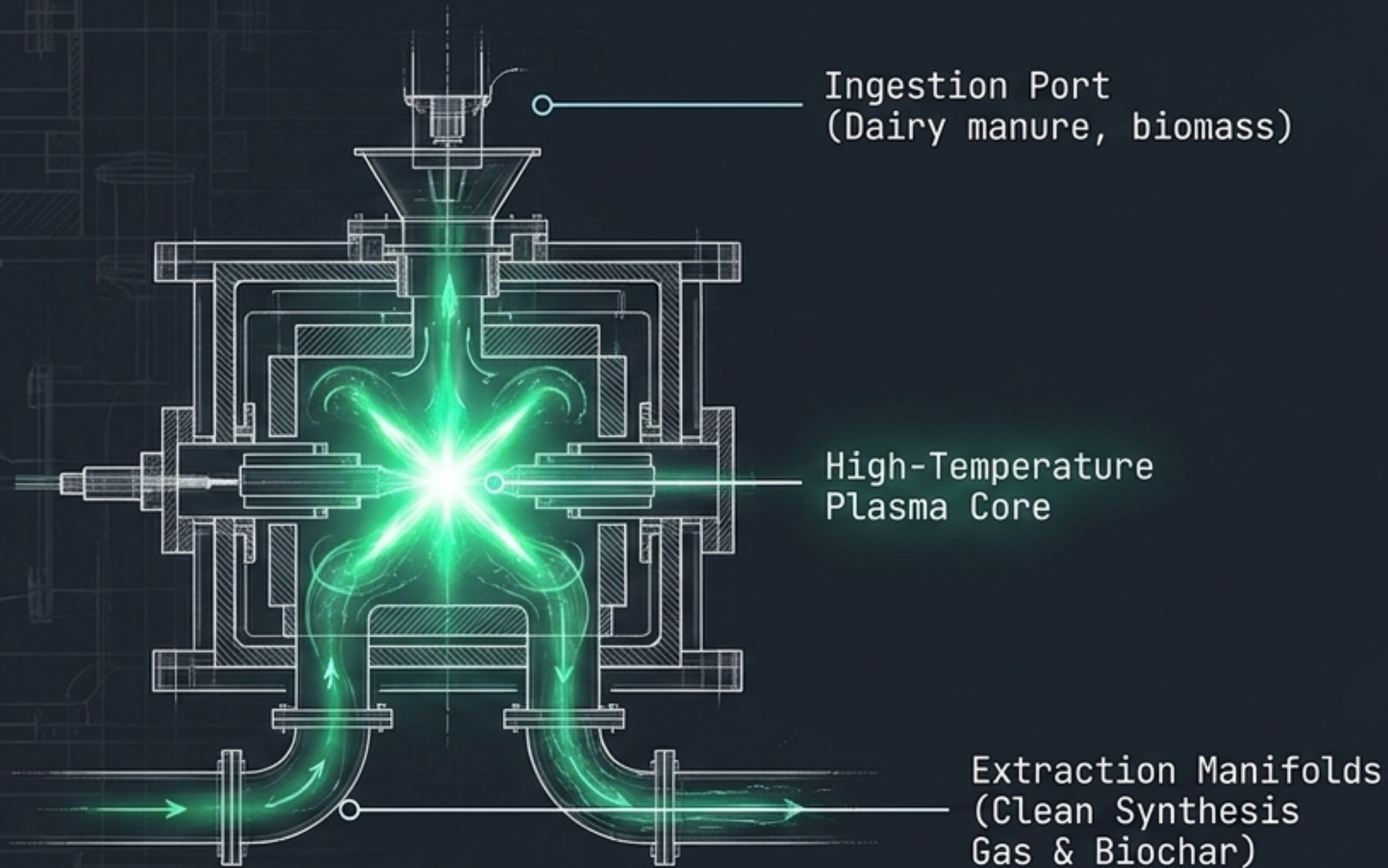
[03] Pawnee 45kW Wankel
Multi-Fuel Core
(Generation)

[04] RIOS-CC Captive
Baseload GPU Racks
(Compute/Arbitrage)



Generation 5 structures its physical infrastructure into a meticulous, **four-stage physical stack**. It engineers the physical flow of energy from raw **manure** to **high-value megahashes**, entirely behind the meter.

Stage 01: Plasma Gasification & Gas-to-Liquids

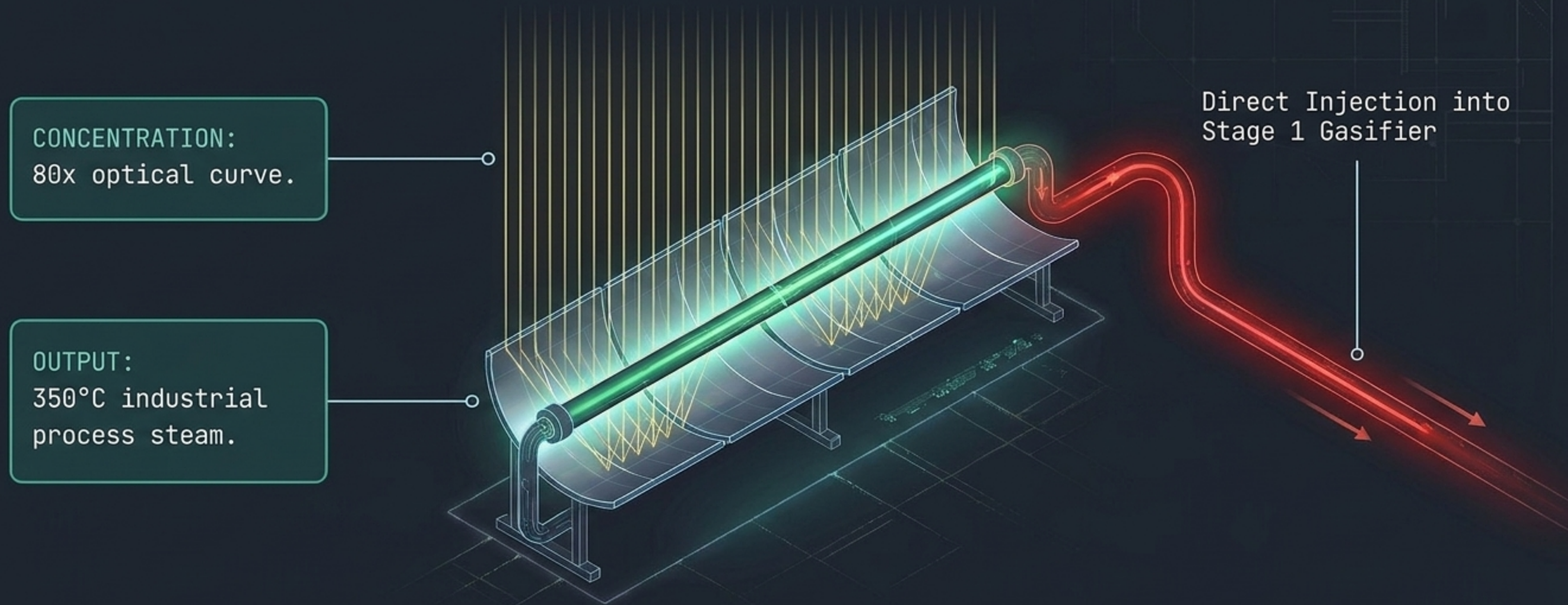


CAPACITY:
50 kWe to 250 kWe
baseload targets.

OUTPUT: Syngas,
Renewable Diesel,
Sustainable
Aviation Fuel
(SAF).

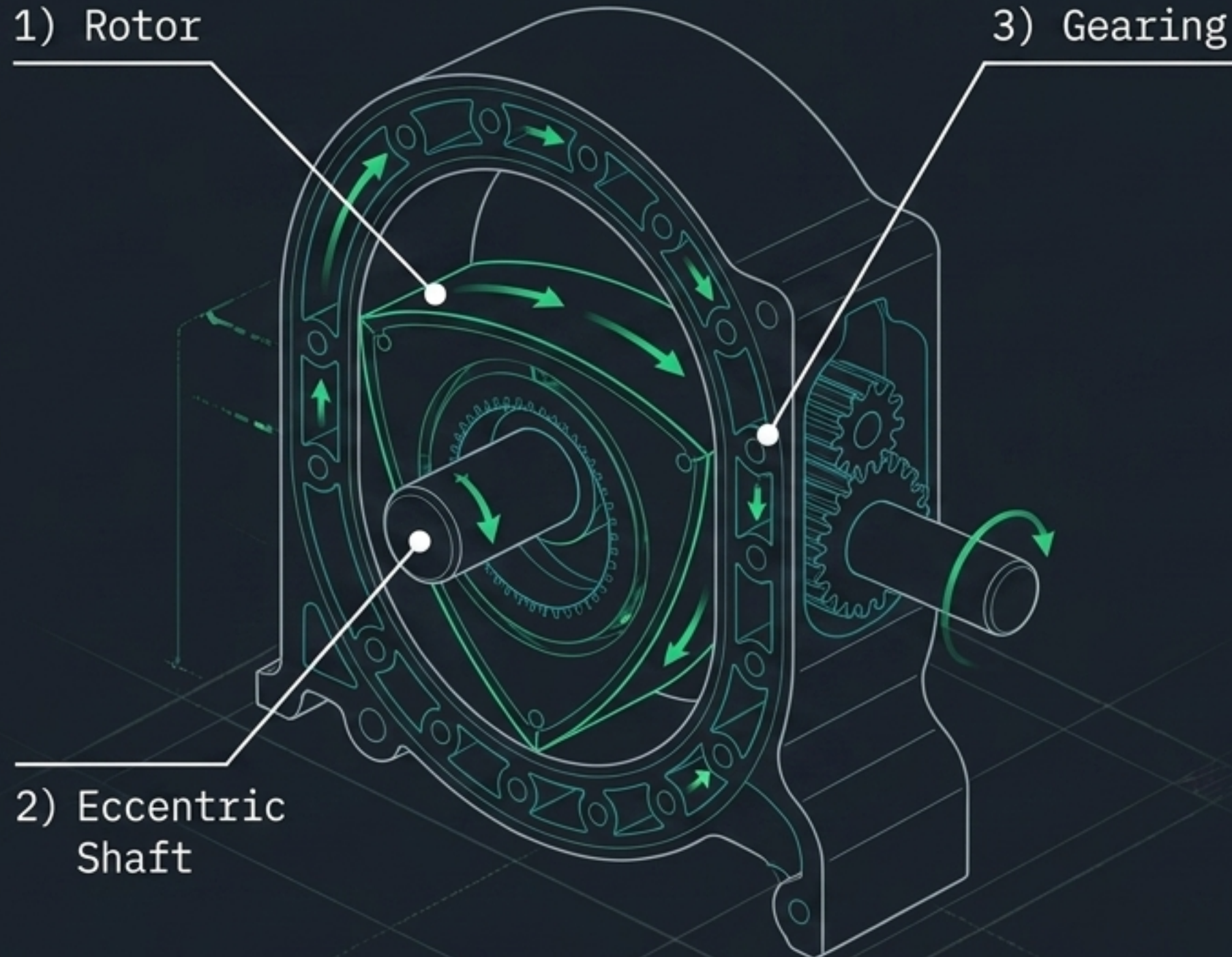
High-temperature plasma gasification and catalytic GTL processing. Instead of relying on vulnerable diesel supply chains, the system synthesizes its own clean fuel ($\text{CO} + \text{H}_2$) locally.

Stage 02: The Zero-Fossil Thermal Loop



Parabolic solar thermal arrays replace daytime fossil fuel consumption. By optically concentrating ambient solar radiation 80x, the system delivers industrial process steam to preheat the gasification vessels.

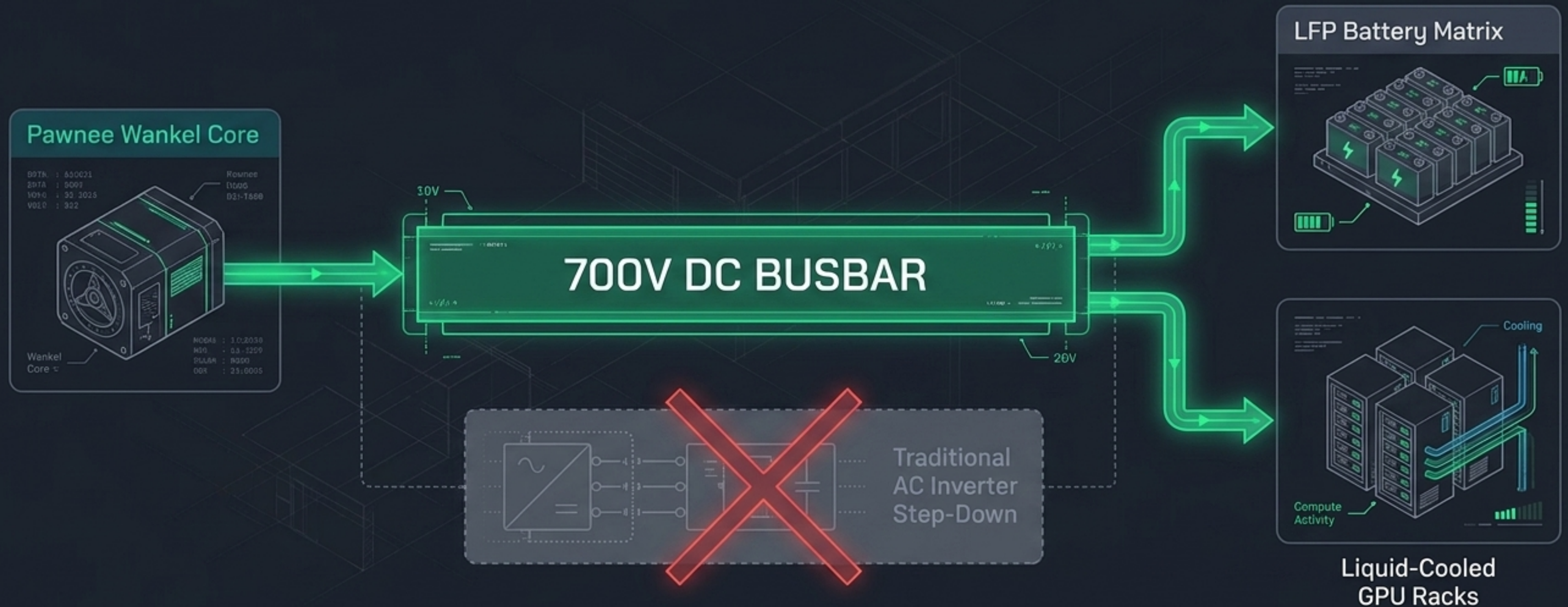
Stage 03: Pawnee Rotary Multi-Fuel Generation



Replacing failure-prone, high-vibration piston diesels. The licensed Pawnee multi-rotor architecture is mechanically frictionless compared to standard engines, eliminating timing belts, valves, and camshaft failure points.

- Seamlessly combusts unrefined agricultural syngas, raw biogas, or liquid biofuels.
- Silenced liquid-cooled canopy minimizes thermal and acoustic detection profiles.

The 700V DC Rectification Highway

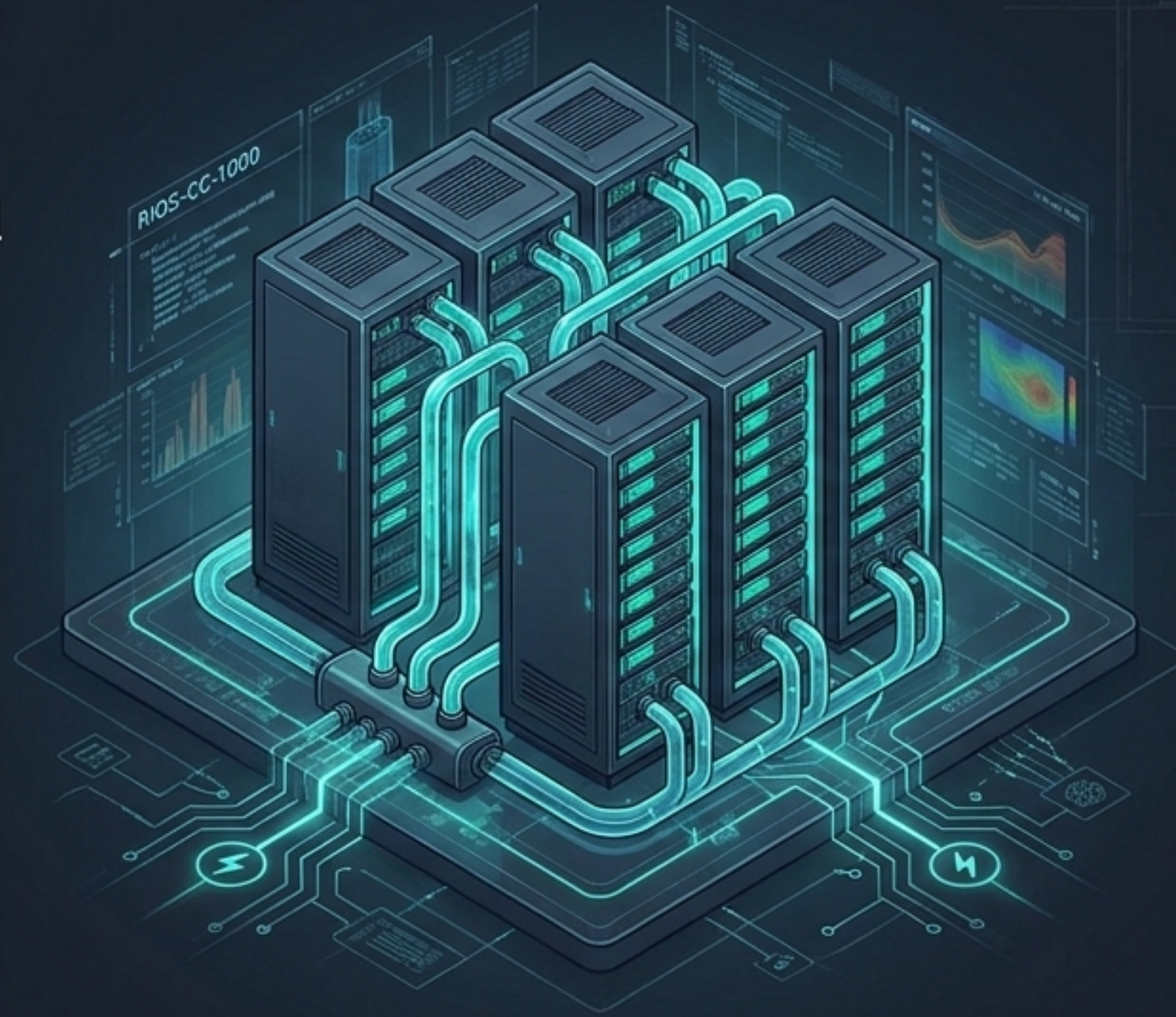


Legacy microgrids suffer heavy losses converting AC to DC and back again. The Gen 5 electrical architecture targets direct power rectification to a unified 700V DC busbar. By bypassing standard step-down conversion losses, the system targets a 97.7% power chain converter efficiency.

Stage 04: Behind-The-Meter Sovereign Compute

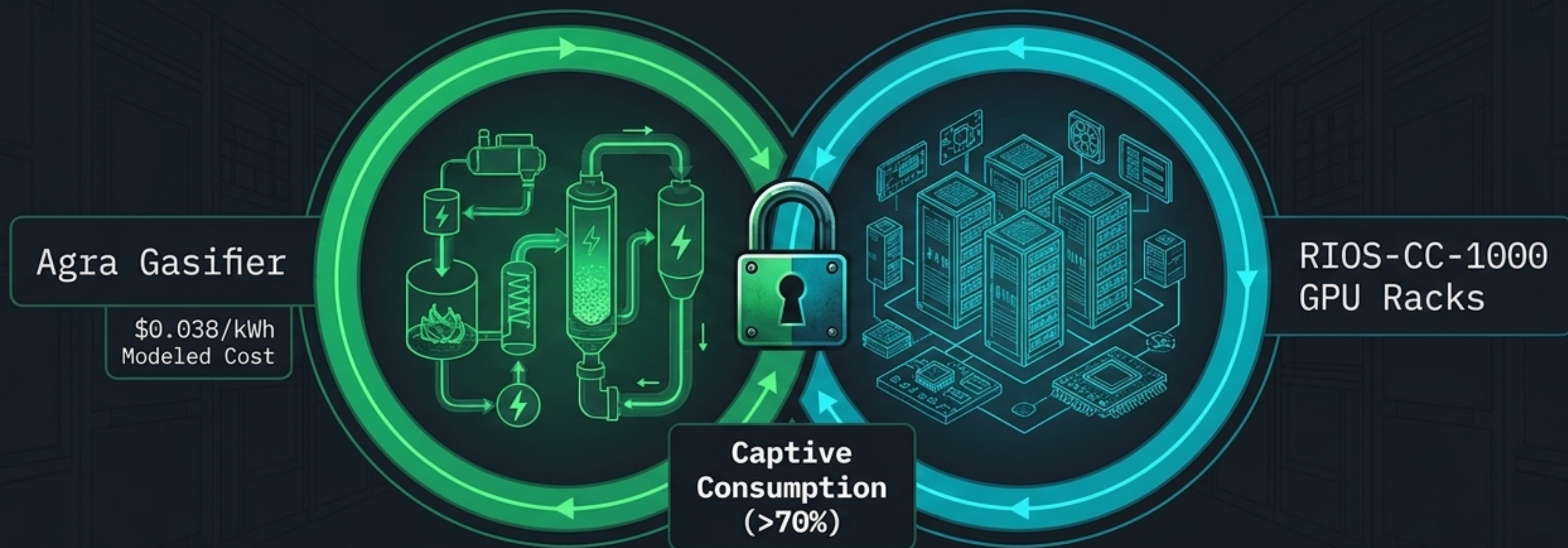
The physical stack concludes with an on-site, captive baseload electrical consumer.

The liquid-cooled GPU compute clusters act as a massive industrial load, consuming the stranded power generated by the gasifier.



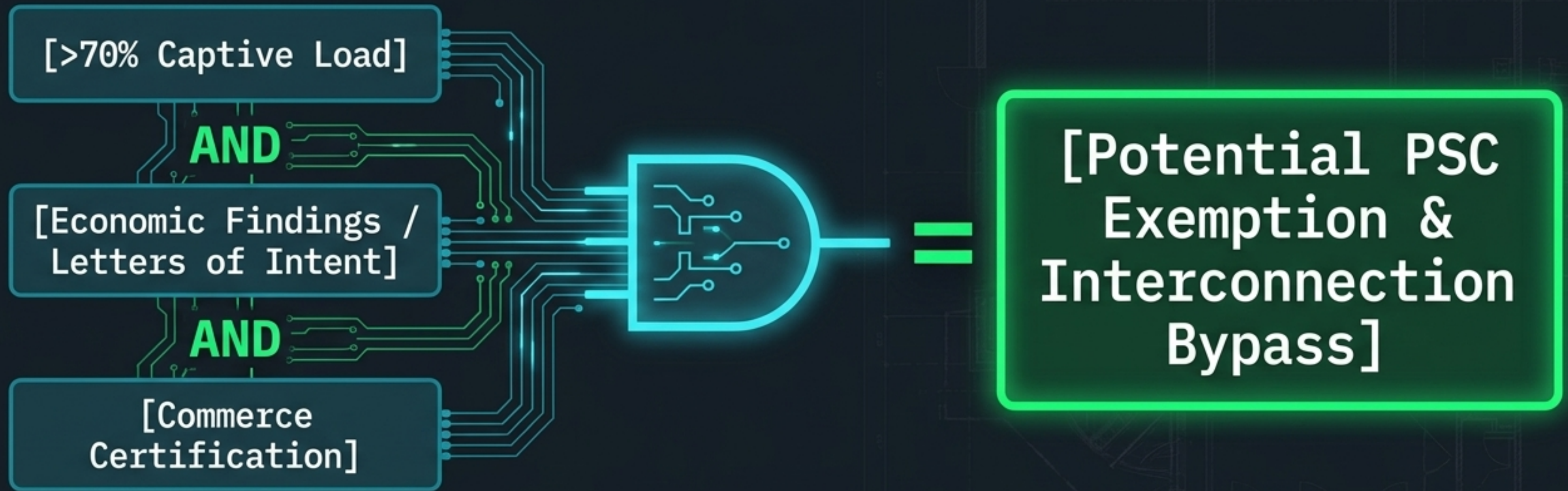
Monetizes agricultural-derived electricity directly into high-value AI compute and cryptographic processing workloads.

The Baseload Arbiter: Orchestrating Arbitrage



DeReticular is an orchestration platform. The AI GPU racks are not just a byproduct—they are the strategic anchor. By acting as a captive consumer that devours the local power on-site, the compute layer generates a modeled 16.6x financial arbitrage over standard wholesale grid export tariffs.

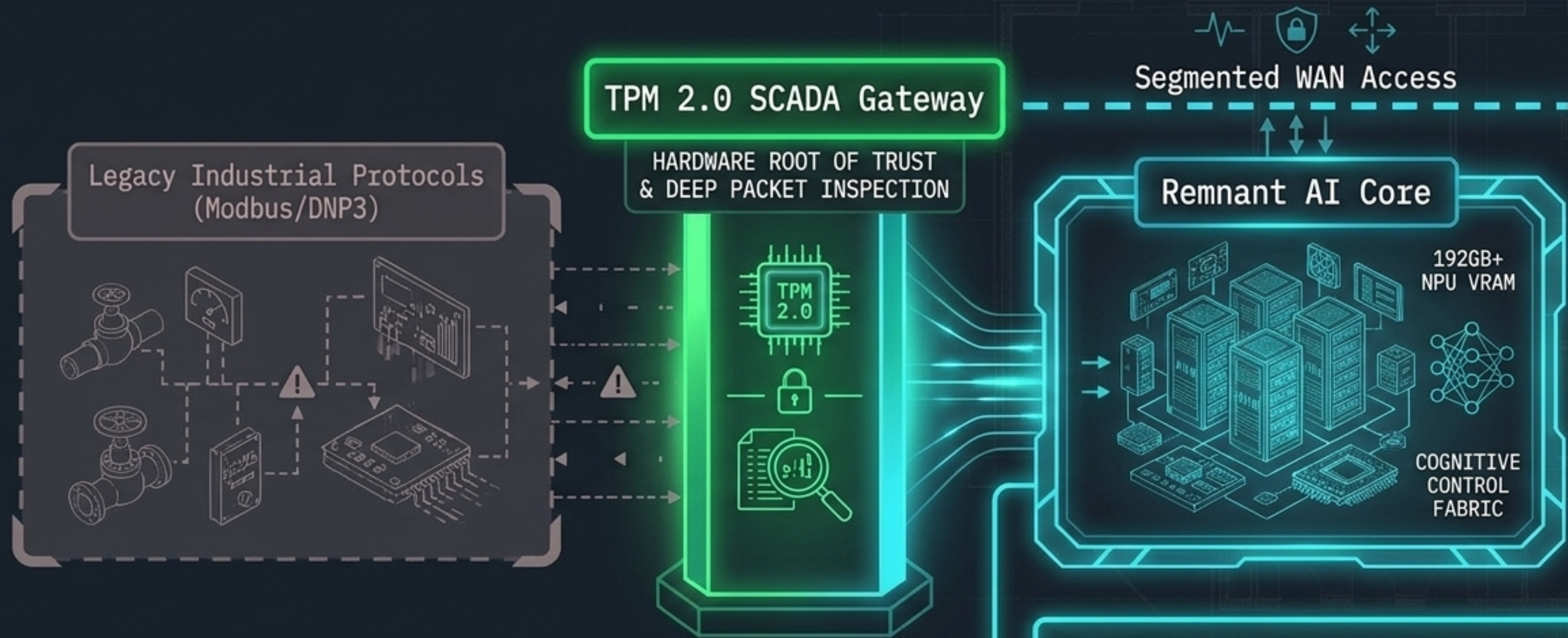
The Statutory Microgrid Pathway (W. Va. H.B. 2014)



The >70% consumption threshold unlocks a specific regulatory pathway. Under frameworks modeled after West Virginia Code §5B-2-21, co-locating prime power with high-impact data center consumption can qualify a site as an independent Certified Microgrid District—removing legacy utility rate regulation and PJM interconnection delays.

Subject to project-specific statutory criteria, formal certification, and legal review.

Hardened SCADA Defense & Cognitive Control



True resilience requires authenticated OT/IT data dispatch. The DR5-COG layer isolates legacy microgrid protocols using Infineon TPM 2.0 hardware roots of trust and deep packet inspection.

TECHNICAL CALLOUT

Sanitized data feeds into the Remnant AI Core (192GB+ NPU VRAM). Configurations utilizing LE0/LTE backhaul operate as locally autonomous networks with segmented, deny-by-default gateways to prevent prompt leakage and telemetry snooping.

The Field Network: LEO vs. GEO Backhaul

		Starlink Business LEO	Legacy Geostationary (GEO)
1	Orbital Altitude	~550 km	~35,786 km
2	Round-Trip Latency	20 - 40 ms (Enables VoIP/VPN)	500 - 750+ ms
3	Download Speeds	100 - 220+ Mbps	25 - 50 Mbps
4	Enterprise Network	Public Routable IPv4	Carrier-Grade NAT

Integrated via the WISP-in-a-Box micro-ISP hubs, Starlink Business provides the **high-capacity, low-latency** backhaul required for tactical outposts, autonomous drones, and remote telemetry—without the need for physical trenching.

Turnkey Deployment Architecture

Tier I: Tactical Node

Target: 911 Dispatch,
Lift Stations.

Autonomy: 48-72 Hrs.

Power: 65kW Cont. /
150kWh BESS.

Budgetary Floor:
≈\$142K+
(Engineered Baseline)

Tier ii: Municipal Core

Target: Town Halls, Ag
Hubs.

Baseload: 50kWe Syngas
+ 375kWh BESS +
Air-Gapped AI.

Budgetary Floor:
\$359K+
(Pre-Integration)

Tier III: Sovereign Matrix

Target: Defense Bases,
Regional Districts.

Baseload: 250kWe Syngas
+ 1.05MWh BESS.

Budgetary Floor:
≥\$898K+
(Pre-Site Works)

Pricing represents audited pre-integration component baselines. Final engineered ranges require civil works, commissioning, and site-specific load profiling.

Non-Dilutive Capital & Conditional Pathways

IRA §6417 (Direct Pay)

Asset & taxpayer specific. 30%-50% modeled offset for tax-exempt entities.

[STATUS: CONDITIONAL]

FEMA BRIC

Tied to quantified critical lifeline hazard mitigation.

[STATUS: PROJECT-SPECIFIC]

NTIA BEAD

State-administered rural broadband subgrants.

[STATUS: STATE-SPECIFIC]

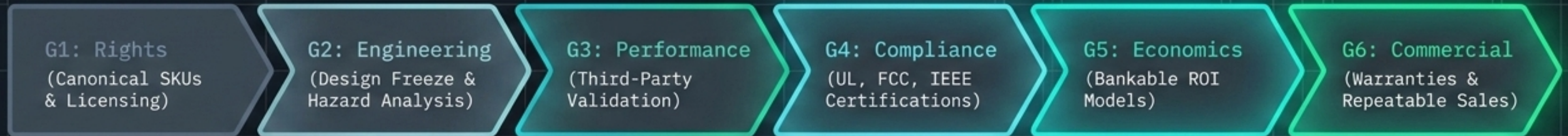
USDA REAP

Up to 50% agricultural cost share.

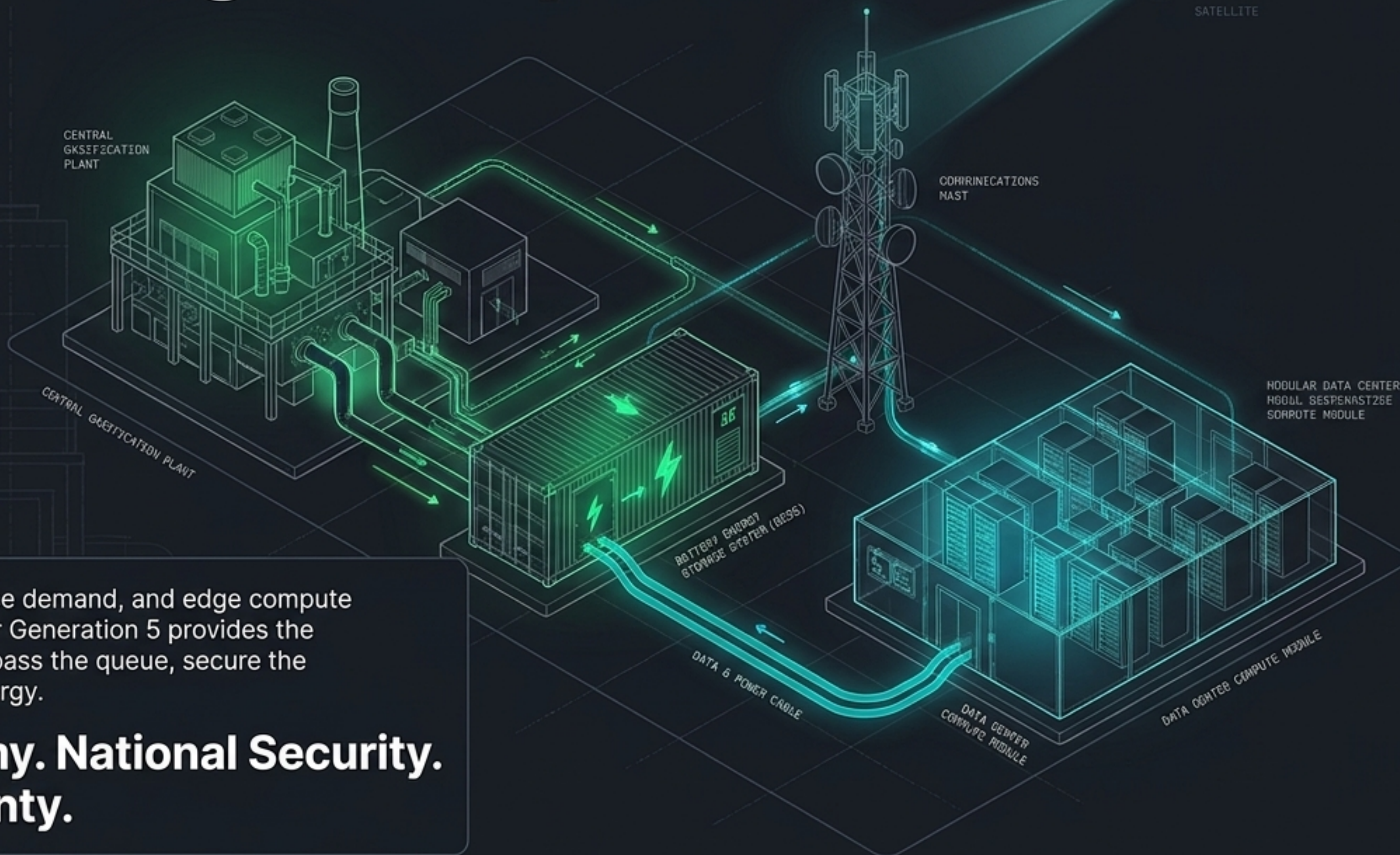
[STATUS: PAUSED / Monitor NOFO]

Public funding can drastically improve project economics, but it is never the product itself. Through Venture Studio, projects are modeled with conservative incentive stacking, treating federal grants as conditional capital pathways rather than guaranteed discounts.

The Six Evidence Gates to Commercial Scale



The portfolio sells outcomes before it sells SKUs. Capital and deployments are released strictly against sequential evidence gates, converting the Gen 5 architecture from engineered concepts into an investable, repeatable platform.



**Local Autonomy. National Security.
Total Sovereignty.**