

Pitch Deck

AI data centers are running out of power and cooling.
We make renewable infrastructure actually work at scale – with
AI that's been scientifically validated and battle-tested.

Singapore
HedgeSPA Private Limited

Hong Kong
HedgeSPA Limited

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HedgeSPA Foundation

Founded to build and commercialize proprietary AI and engineering technologies

- Developed from Dr. Bernard Lee's background IP, but **battle-tested at BlackRock** with deployment at Tier-1 institutions and recognized with multiple industry awards
- Supported by over **US\$1+ M** in Singapore R&D grants across more than a decade
- Retains **100% ownership** of all intellectual properties

From BlackRock to the Next Generation of AI & Infrastructure Investing





Core Technology Platform

Cutting-edge AI / Graph Neural Network engine with proven applications across
fintech and industrial domains

Deployed in production environments with continuous scientific
validation

Designed for scalable commercial deployment

One Proprietary AI Platform. Multiple High-Value Applications.



Engineering Challenge

The Known Engineering Problem **Why Solar-Thermal Has Not Been More Widely Deployed?**

Solar-thermal is 3× more efficient than PV – but it's been *stuck in the desert*.

Why?

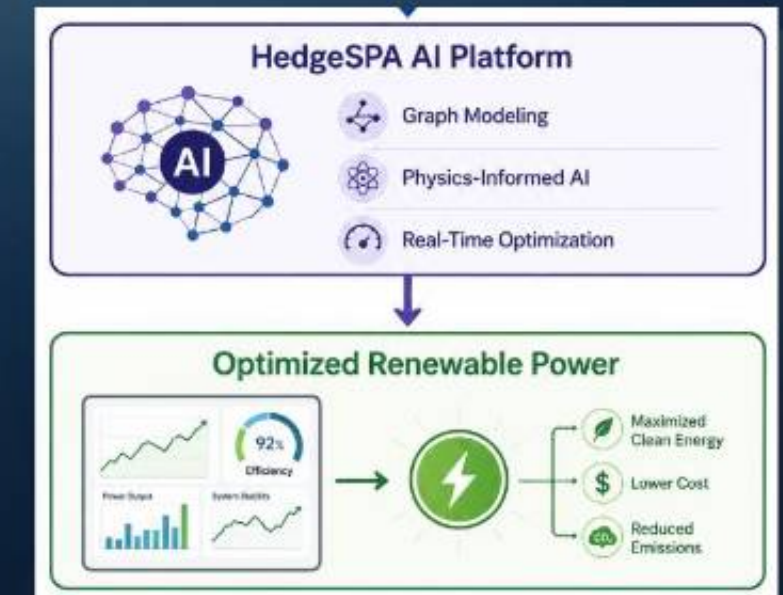
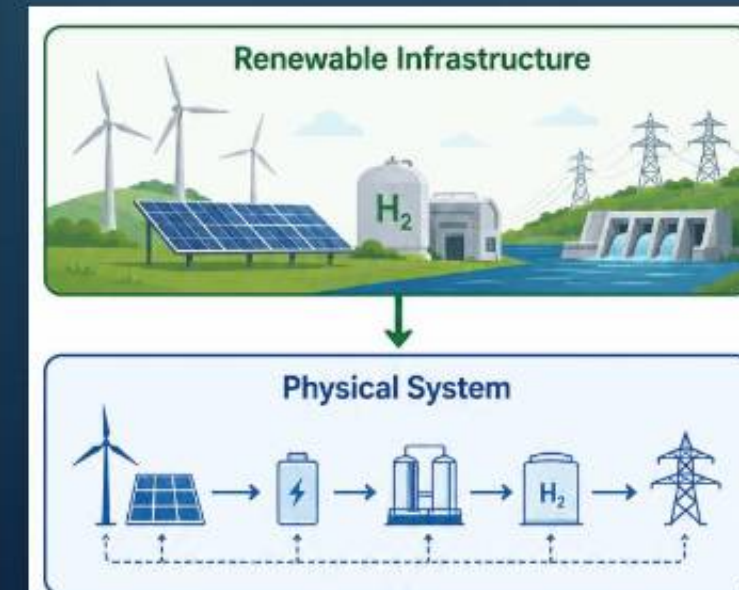
Because it's a **control nightmare**: temperature, pressure, fluid flow all need constant adjustment.

Conventional Bellman's methods break down as systems scale.

So it's been deployed far from cities in the desert, wasting energy on transmission.

The Smart Engineer's Solution

We solved the control problem.
Now it works anywhere – including data centers rooftops.





Why This Matters for AI Data Centers

AI Data Center Growth

- Rapid expansion of AI computing
- Accelerating data center construction
- Increasing electricity demand
- Growing cooling requirements

Industry Needs

- 24-hour renewable power
- Lower operating costs
- Lower carbon footprint
- Scalable energy infrastructure

Power + Cooling ≈

80%

*of data center
operating costs*

Increasing renewable power requirements due to regulations



HedgeSPA's Engineering Solution

An AI Operating System for Renewable Infrastructure

HedgeSPA integrates three engineering capabilities into a single control platform:

Monitor

Continuous monitoring
of renewable energy
systems

Optimize

Real-time operational
optimization

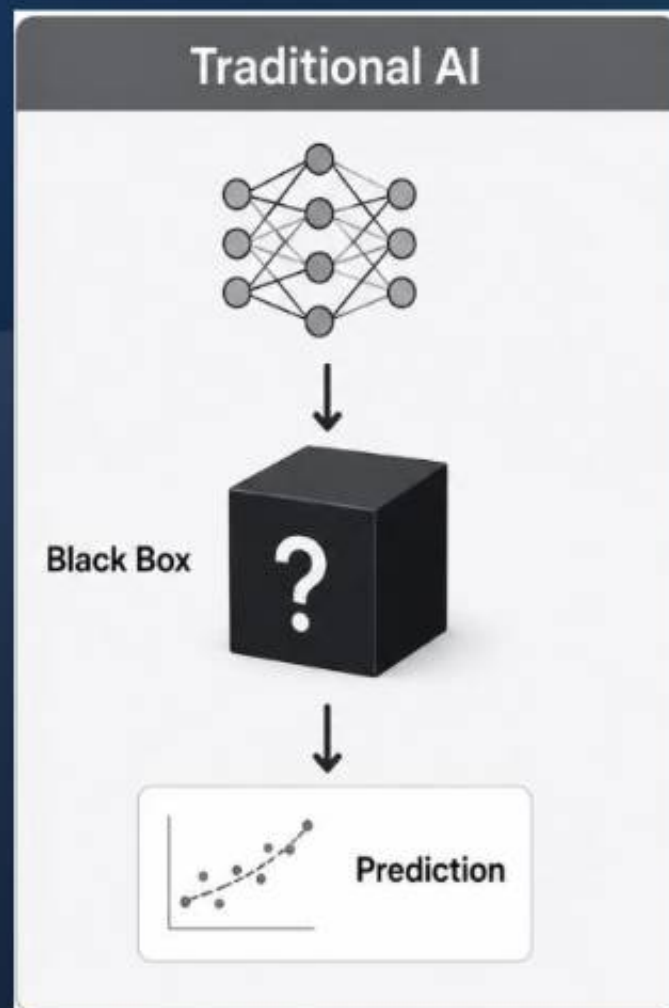
Maintain

Predictive maintenance
support

Scalable deployment across distributed energy assets

Why Our AI Is Different

Engineering Designed for Physical Infrastructure
We don't guess. We calculate – and we can prove it scientifically.

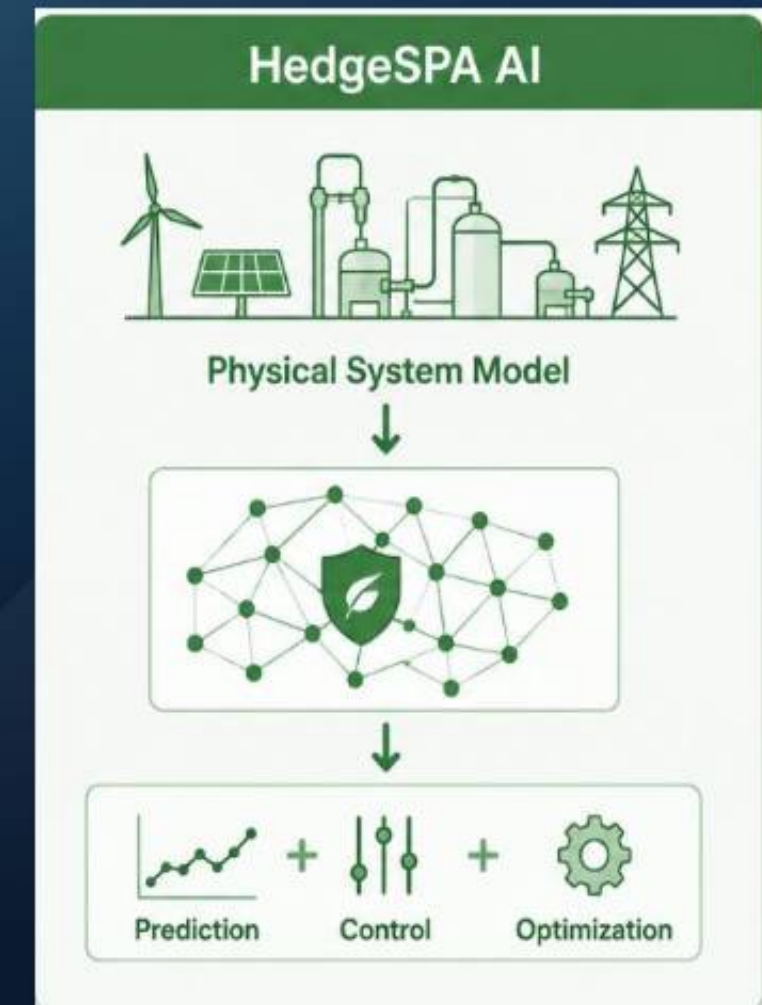


Traditional AI

- *Black-box*
- *Learns correlation*
- *Optimize components*

HedgeSPA AI

- *Traceable to engineering variables*
- *Models physical dynamics*
- *Optimizes whole networks*





Engineering Validation

Measured Performance Across Realistic Operating Conditions

- Evaluated across more than **30 weather scenarios** including extreme ones
- Generalizes to unseen operating conditions
- Suitable for **real-time infrastructure control**
- Scientifically validated through peer-reviewed research published at top-quartile scientific journal



Validation Highlights

98.4%

in-sample accuracy, with practically no out-of-sample loss

Performance Metrics

Technical Performance

- Up to **3× higher efficiency** than conventional PV systems
- **24-hour** renewable energy production
- **Intelligent** real-time optimisation

Commercial Benefits

Lower operating costs

Bankable infrastructure assets

Scalable deployment

From Engineering Innovation to Commercial Value





Commercial Readiness



Positioned for Infrastructure Deployment

Strategic Foundation:

Singapore-backed, peer-reviewed science

Proprietary IP:

AI and engineering IP fully owned

Market Focus:

Renewable infrastructure designed for AI data centers

Deployment Strategy:

Commercial deployment strategy already established

Existing Engagement

Sarawak:

Presented to Sarawak Economic Development Corporation (SEDC) senior management

Hong Kong:

Tokenization, custody

Oman:

Certified mixing with fossil fuels
Partners intimately connected to the AI data center ecosystem
Renewable infrastructure certification opportunities



Development Roadmap

Phase 1: **Technology Development**

- Continue AI platform development
- Expand scientific publications
- Strengthen renewable infrastructure platform



Phase 2: **FEED/Pilot Deployment**

- Industrial rooftop projects
- Renewable infrastructure demonstration
- Commercial validation



Phase 3: **Commercial Expansion**

- AI data center infrastructure
- International project deployment
- Scalable infrastructure portfolio





Investment Economics

What the numbers look like at scale

Item	Target
Equity	5–10× target over project life
Senior debt	10–15% secured against physical assets
Per MW economics	\$1.86M revenue over 10 years
Moat	Proprietary AI = lower O&M, higher uptime, bankable assets



"We're not selling a story. We're selling infrastructure with software margins & tech PE."



Investment Structure & Risk Mitigation

Meaningfully lower fees than Blackstone and KKR

Risk Mitigation

- Senior debt: 10-15% fixed, secured against assets
- Equity aligned with long-term project performance
- HedgeSPA participates through management incentives
- "We win when our clients and investors win"
- Proprietary AI eliminates operational uncertainty



Additional Risk Reduction

- Low Government more ready to engage another government-funded entity
- Renewable demand due to regulations
- Long-life, low-maintenance infrastructure assets
- 100% proprietary technology ownership



The Ask

Investment Opportunity

Raising: \$3 – 5M USD

to deploy **1 – 3 MW** of AI-controlled renewable infrastructure

Commercial Benefits

FEED/Pilot deployment

(targeting Australia with certified mix off-take interest in Malaysia or Indonesia with over USD 1B in pledged collaterals)

AI platform scaling

Commercial expansion

(Sarawak, Indonesia, Oman)

Target First Close: Q4 2026



The Team

**Bernard Lee,
PhD, CFA**

Founder & CEO

**Former Managing Director,
Portfolio Management Group,
BlackRock (New York)**

**Former Professor (Singapore,
US, Hong Kong)**

**Consulted for energy majors
such as Chevron-Texaco**

**"Built billion-dollar portfolios. Now
building billion-dollar infrastructure."**

**Prof. Anthony G.
Constantinides**

Science Advisor

**Co-Director, AI & Data Analytics
Lab, Imperial College London**

**Knighted Fellow, Royal
Academy of Engineering**

**Electee, US National Academy
of Engineering**

IEEE Life Fellow

**"One of the world's foremost experts in
signal processing and AI is on our team."**



The Team

Board Member

Galen Murphy

Prominent investment advisor to UNHWs and venture investor with decades of fintech and infrastructure exits

Business Advisors

Edan Lee

Managing Director, one of the leading sustainability-focused PE funds in Asia

Dr. Alex Chua

Well-known veteran of the oil/gas industry with lawyer, CPA and CFA credentials

Tech and R&D Firepower

- Joint publications in top-quartile scientific journals: 4+ per year
- Core expertise: signal processing, graph theory, optimization, financial engineering
- Active collaborations with Fraunhofer Institute with staffing by top engineering talent from Arizona State and Illinois Institute of Technology
- Recognition: HKMA/HKT Best in AI Innovation Award; IARIA Green Steering Committee



To Recap: Why HedgeSPA

Technology

- Physics-informed AI
- Scientifically validated
- Explainable & traceable

Market

- AI data center energy crunch
- Renewable transition
- Government-backed from day one

Business

- 5–10× equity target
- \$1.86M/MW over 10 years
- Recurring infra cash flows

**"We built the OS for renewable infrastructure.
Now we're deploying it at scale."**



Core Investor Takeaways

Core Investor Takeaways

- **Builds renewable infrastructure** for AI data centers
- **Proven AI control:** 98.4% in-sample accuracy, practically no out-of-sample loss
- **Scientifically validated** engineering platform
- **Attractive long-term infrastructure economics:** \$1.86M per MW over 10 yrs, 5–10× returns for Equity investors
- Supported by **strategic government (Sarawak, Oman, Hong Kong)** and industry relationships



Appendix & References

Key Publication

Lee, W.B.; Constantinides, A.G.

Electronics

Vol. 15, Issue 8

2026

MDPI Open Access

From Bellman to Real-Time: Graph Compression, DCRNN, and MARL for Scalable Energy System Control – Methodology and Initial Validation.

Electronics, 2026, 15, 3119.

<https://doi.org/10.3390/electronics15143119>

98.4%

*In-Sample Accuracy
Practically no out-of-
sample loss*

<1s

*Inference Latency
Real-time control*

2

*Companion Papers
Top-quartile journal*

Key Contributions

- Intractable stochastic control now feasible in real time
- Sparse Input: Only network-graph description required
- Autonomous Learning: 98.4% accuracy with no manual intervention
- First of Two: Companion paper forthcoming
- Safety-Critical: Enables operational certification



Building the Next BlackRock & Blackstone Model

Public Market and Fintech Activities Launched First

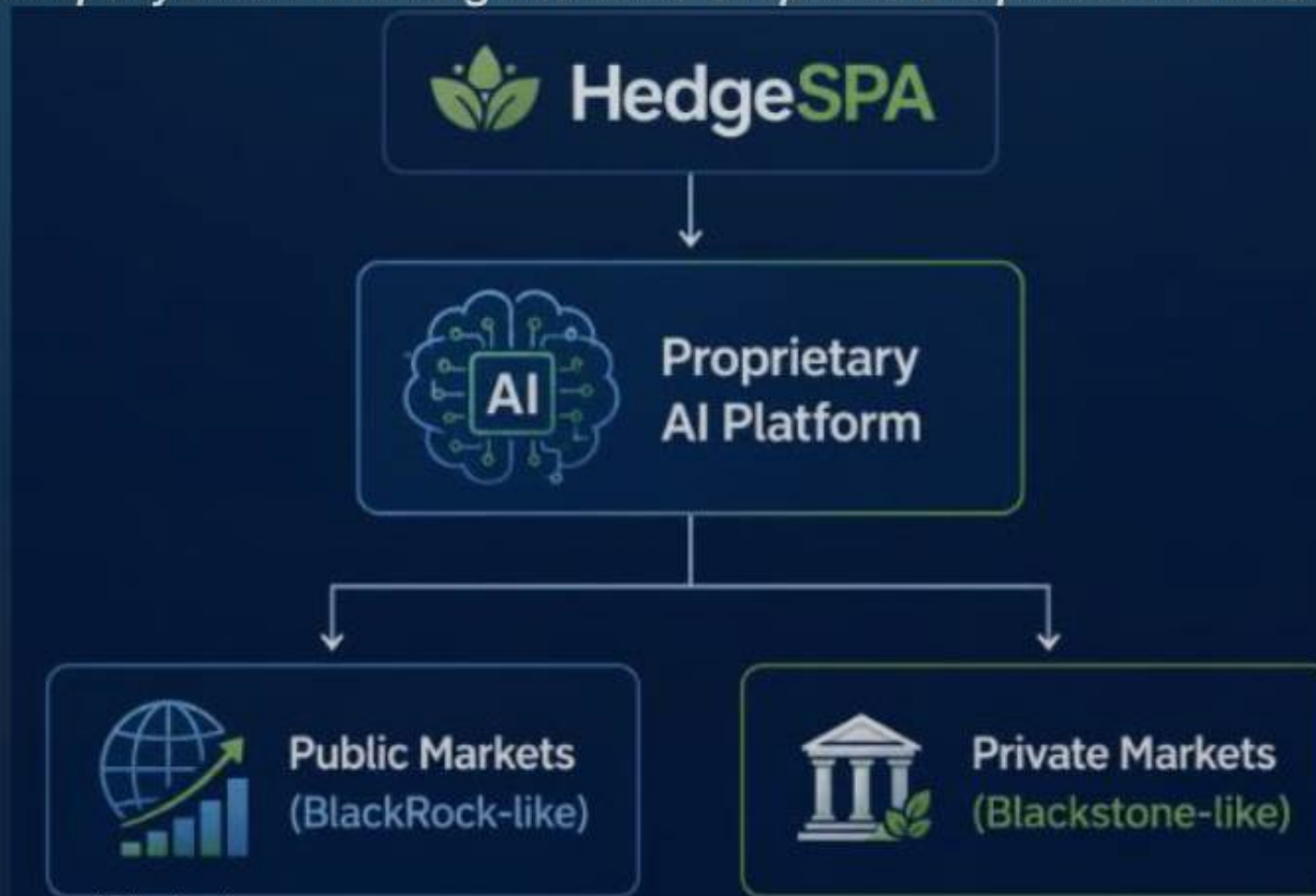
Existing institutional investor (insurance capital from a leading global bank in the UK) for public market JV requires exit within 5 years.

Public markets (generally easier to exit) and private investment businesses may eventually operate independently.

Other HedgeSPA shareholders will benefit from both businesses and receives the best value due to Singapore's "fair value" clauses.

Both businesses continue to leverage HedgeSPA's proprietary AI platform.

BlackRock & Blackstone were one company before evolving into leaders in public and private markets. HedgeSPA follows a similar model.





Renewable Infrastructure Powering Data Centers

Our Solution: Physics-Informed AI

Technology Edge: Why HedgeSPA Scales Beyond Classical Control

Paradigm Shift: From Path-following to System Health

Core Architecture Overview

Three pillars – Graph Compression, DCRNN, MARL – form the operating system for renewable infrastructure.

Graph Compression

Reducing Complexity
While Preserving
Physical Behavior

DCRNN

Forecasting with
Physical Constraints

MARL

Multi-Agent
Reinforcement
Learning for System-
Wide Control



Performance Results

Accuracy

98.4%

*In-Sample Accuracy
Practically no out-of-
sample loss*

Speed

<1s

*Inference Latency
Real-time control*

Scalability

Sparse network-graph description
(adjacency matrix) as input

Scales to complex industrial systems

Resilience, Safety, Robustness

Enables other safety-critical and "soft-touch"
applications with passive learning



R&D Overview

Technology Platform

- Physics-informed AI with graph-based control
- Scientifically validated through peer-reviewed research
- Proprietary IP fully owned by HedgeSPA

Why AI Matters

- AI control = predictable O&M, bankable assets
- Software-defined infrastructure = lower operating costs
- Cloud-controlled = no on-site engineering teams required
- Infrastructure cash flows + tech multiple = attractive exit optionality





Thank You

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