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Optimized for LCOS Success: 750+ Ah cells in 10-foot containers, the next generation of scalable storage

21 November 2025

3:00 pm – 4:00 pm | CET, Berlin
9:00 am – 10:00 am | EST, New York City
8:00 am – 9:00 am | CST, Mexico City

Blathnaid O'Dea
Feature Editor
pv magazine

Chi Zhang
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Welcome!

pv magazine webinars

Do you have any questions? ❓ 🙋

Send them in via the Q&A tab. 👉 We aim to answer as many as we can today!

You can also let us know of any tech problems there.

We are recording this webinar today. 📹

We‘ll let you know by email where to find it and the slide deck, so you can re-watch it at your convenience. 👀 💡

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Optimized For LCOS Success:

750+ Ah Cells in 10-Foot Containers, the Next Generation of Scalable Storage

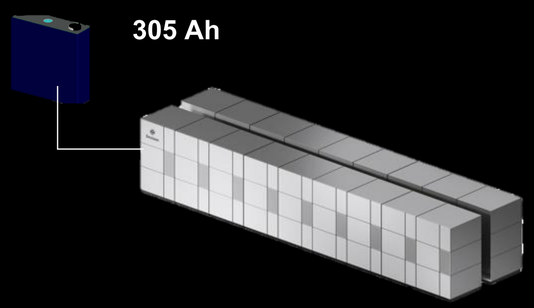
Agenda

- ENS-D10: LCOS-driven BESS Solution
- En ACSkid-10: Grid Forming MV Platform
- Hybrid Solution, AI-driven Diagnosis, Cybersecurity
- Prevention-first Fire Safety
- Global Footprint and Case Studies

ENS-D10: LCOS-driven BESS Solution

System Development Roadmap

Gen 6



Flexible Bank: 7.3 MWh

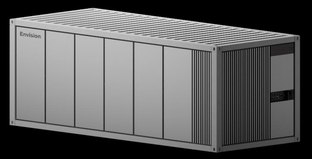
DC-DC Augmentation Solution

Single Skid: 3300kVA

Gen 7

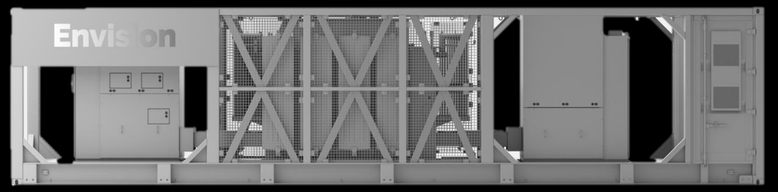
EN5: 5MWh DC Container

Harsh Environment Adaptability



EN5 Pro: 5MWh String PCS

Extreme Performance Driven



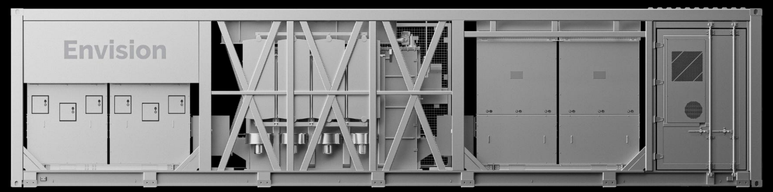
TwinSkid MV System

5500 kVA / 6900 kVA AC MV Skid

Gen 8

Scalable Platform: 10 MWh

Extreme LCOS Driven



TwinSkid MV System

10 MVA AC MV Skid

2021 — 2023 — 2024 — 2025 - 2026

GEN 8 Scalable Platform

Gen 8: Scalable Platform for Higher Energy Density and Flexibility

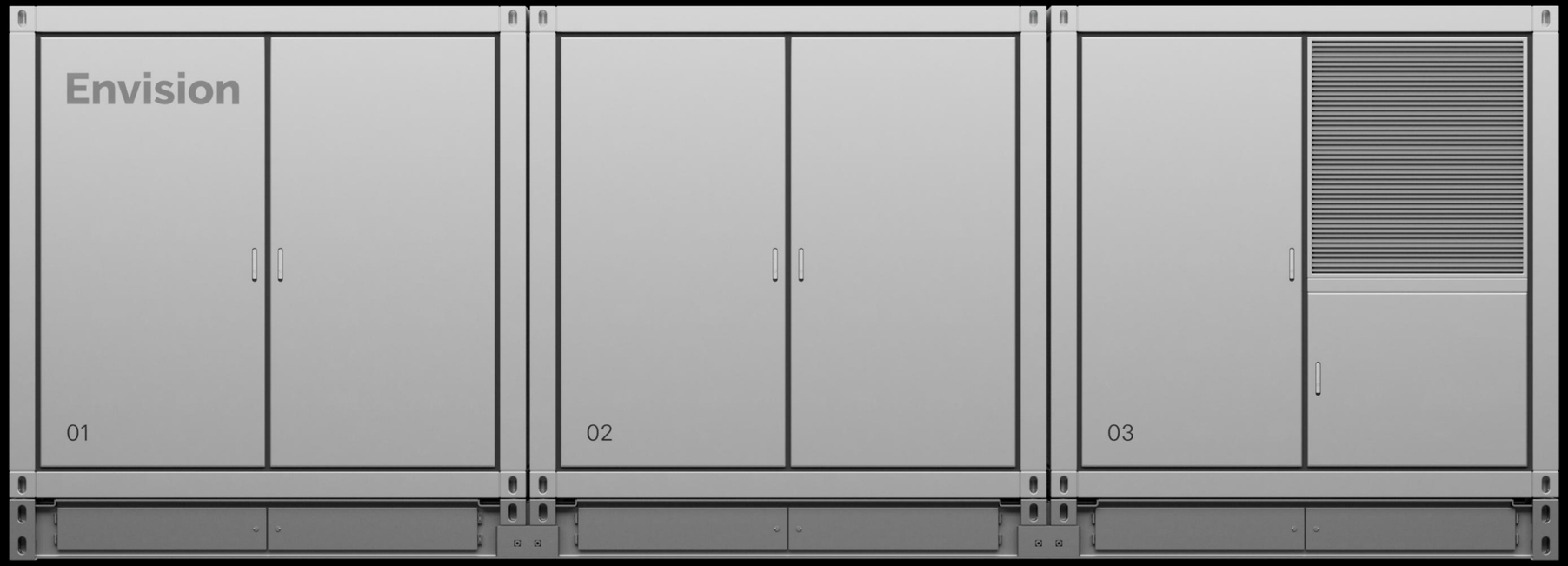
Scalable 10-foot Modular System for Easy Transportation and Duration Flexibility

4 MWh Battery Segment

Each modular battery segment is less than 29 tons for easy transport

Scalability

From 4h to long



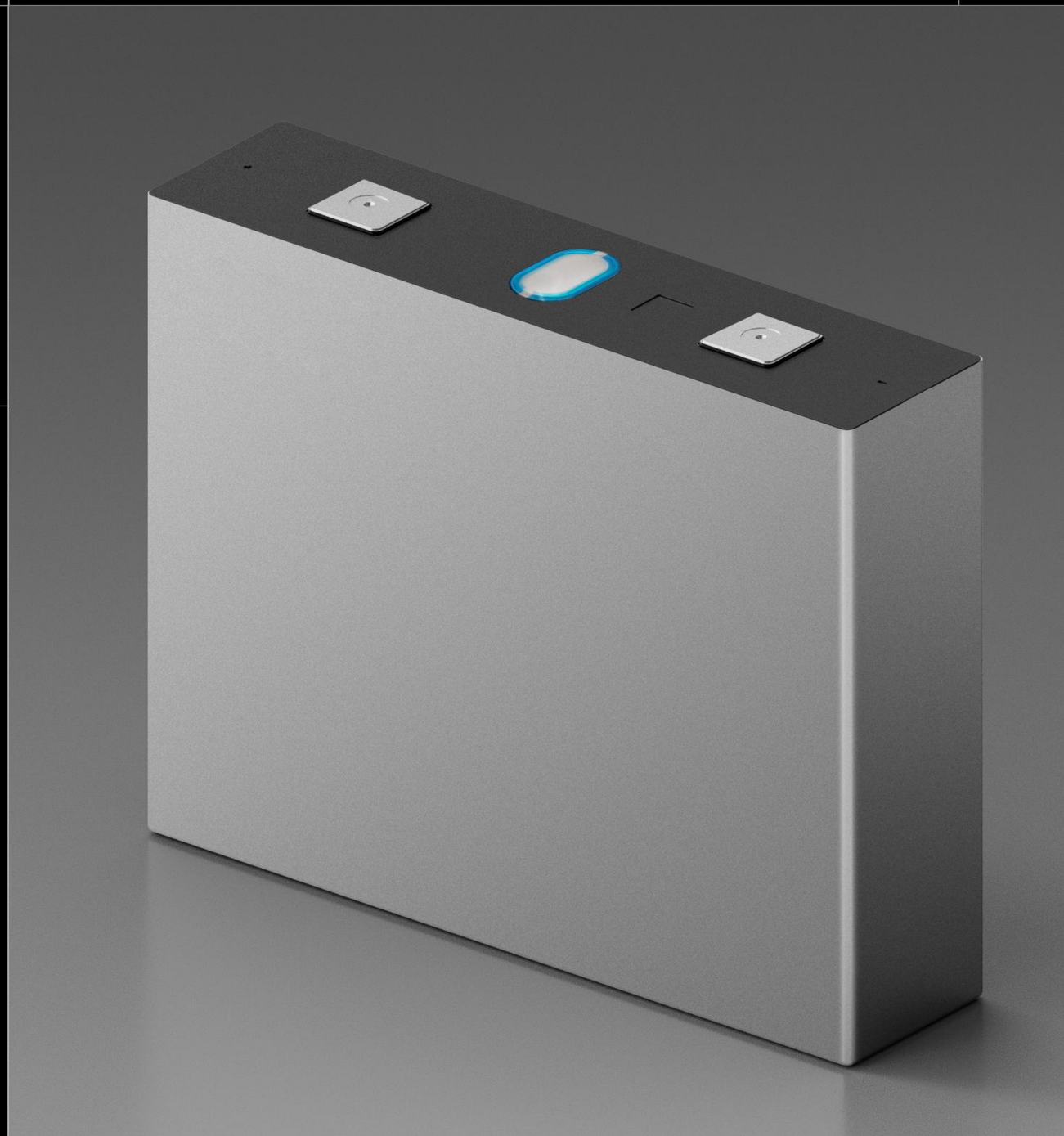
750+ Ah High Energy Density Cell

Tailored for Energy Storage Applications

10%↑
Energy Density

11000+
Cycle life

25 Years
Life time



Enhanced Cycling and Calendar Degradation

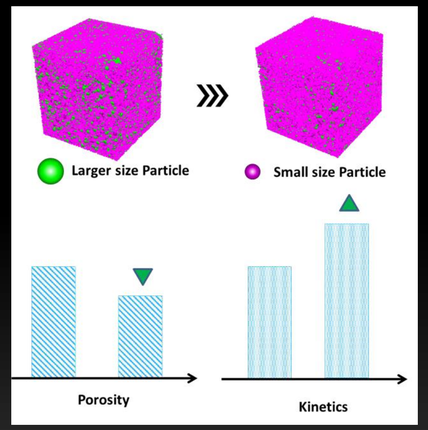
Optimization on Reaction Kinetics and Electrochemical Stability

11000+
Cycle Life

25 Years
Lifetime

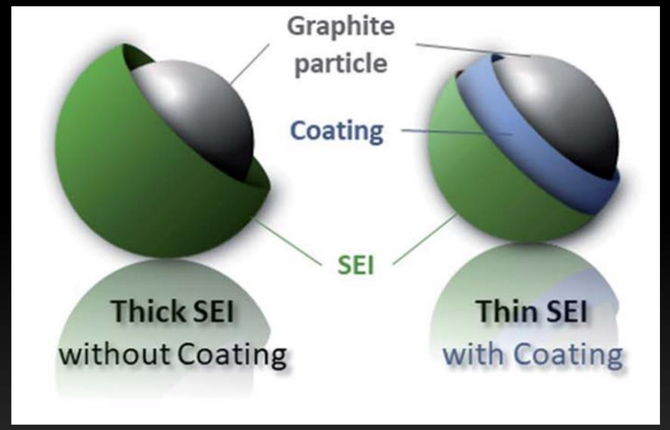
High-Compaction LFP

Optimized LFP particle size to enhance react kinetics



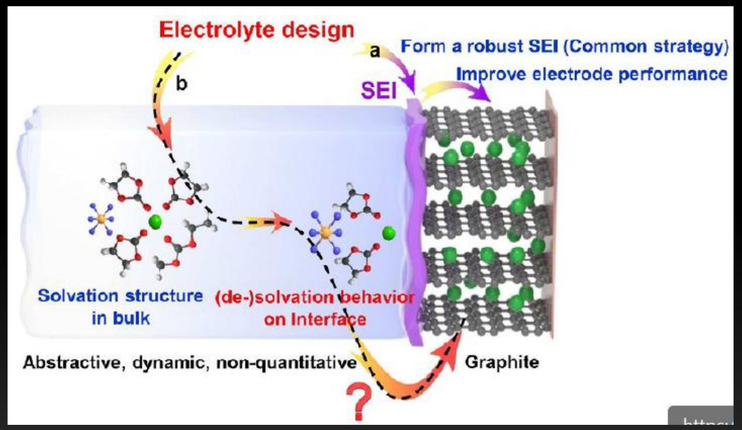
Advanced Anode Coating

Reduced irreversible lithium consumption



Solvent Recipe Optimization

Facilitate SEI formation and reduce DCIR increase



Enhanced Flexibility with Lower Aux. Consumption and Noise Level

≥ 4 Hours

Flexibility in duration

26% ⬇

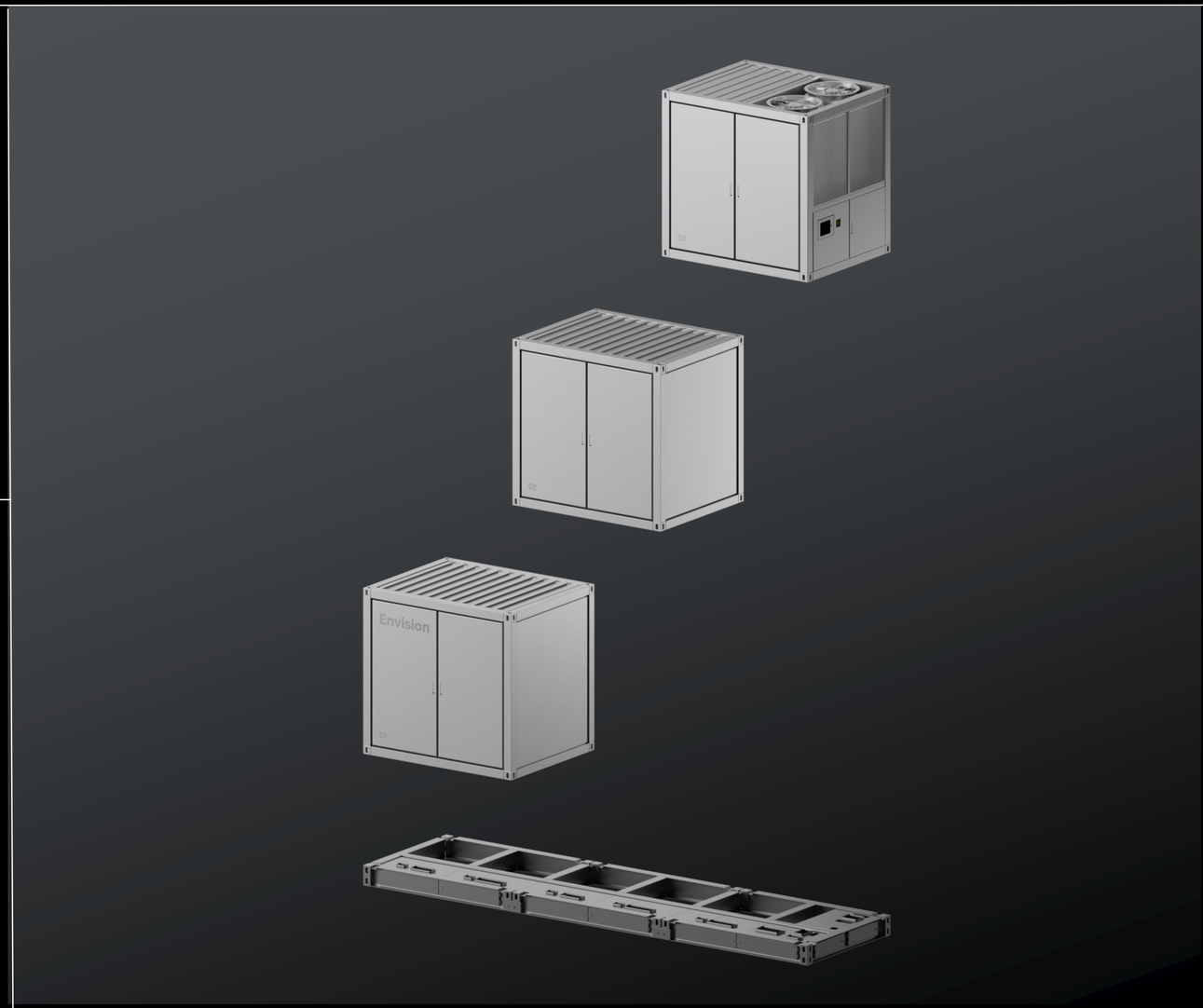
Footprint reduction from Gen 7 in a 4-hour configuration

15% ⬇

Lower than industry tier 1 integrators

12 dB(A) ⬇

Lower than industry tier 1 integrators



15% Lower Aux. Power Consumption Compared to Industry Tier 1

Intelligent Control

Temperature-adaptive hybrid cooling for higher efficiency

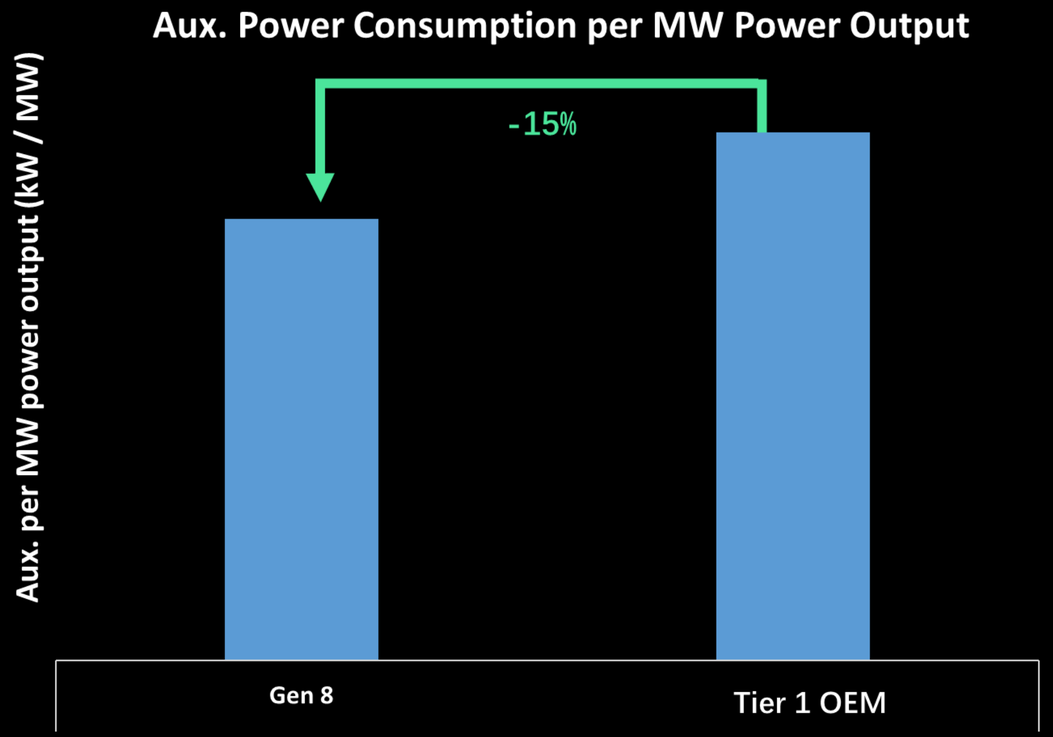
Minimized Temperature Deviation

Coolant routing optimization reduces pressure loss, enhances flow distribution, and ensures even temperature distribution among cells

Top-side Dissipation

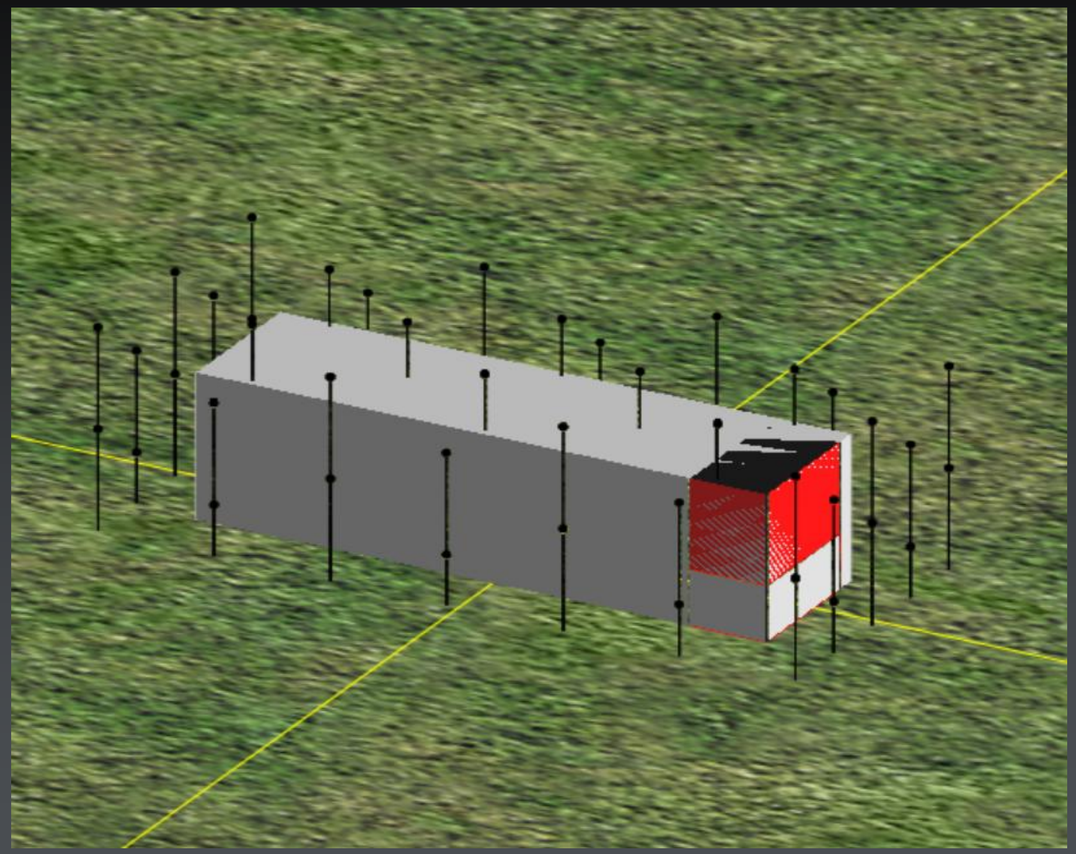
- Minimizes site heat-islanding effect
- Designed for hot climates up to 55°C

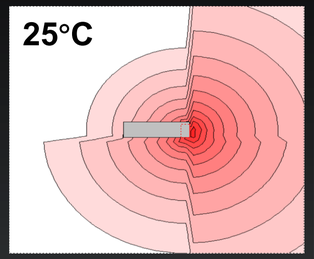
15%+ aux. Saving from Industry Tier 1

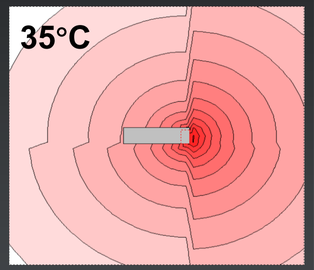


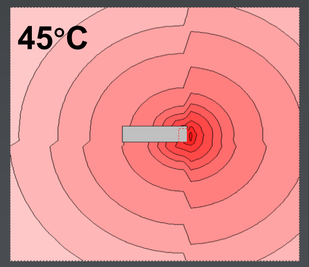
12 dB(A) Lower in Sound Pressure Level Compared to Industry Tier 1

In-house Noise Simulation Capability

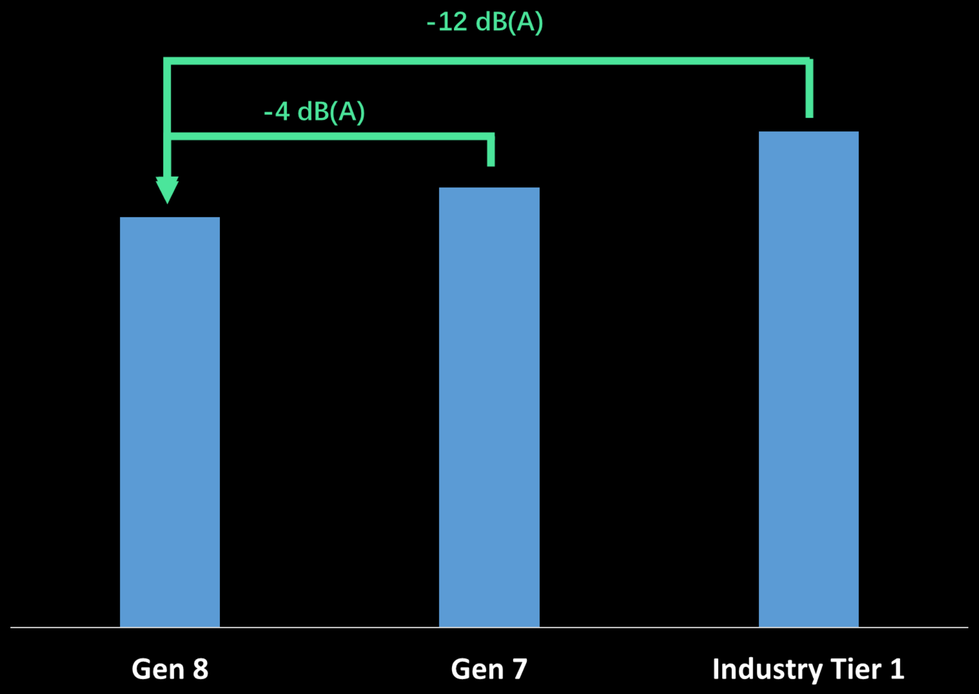






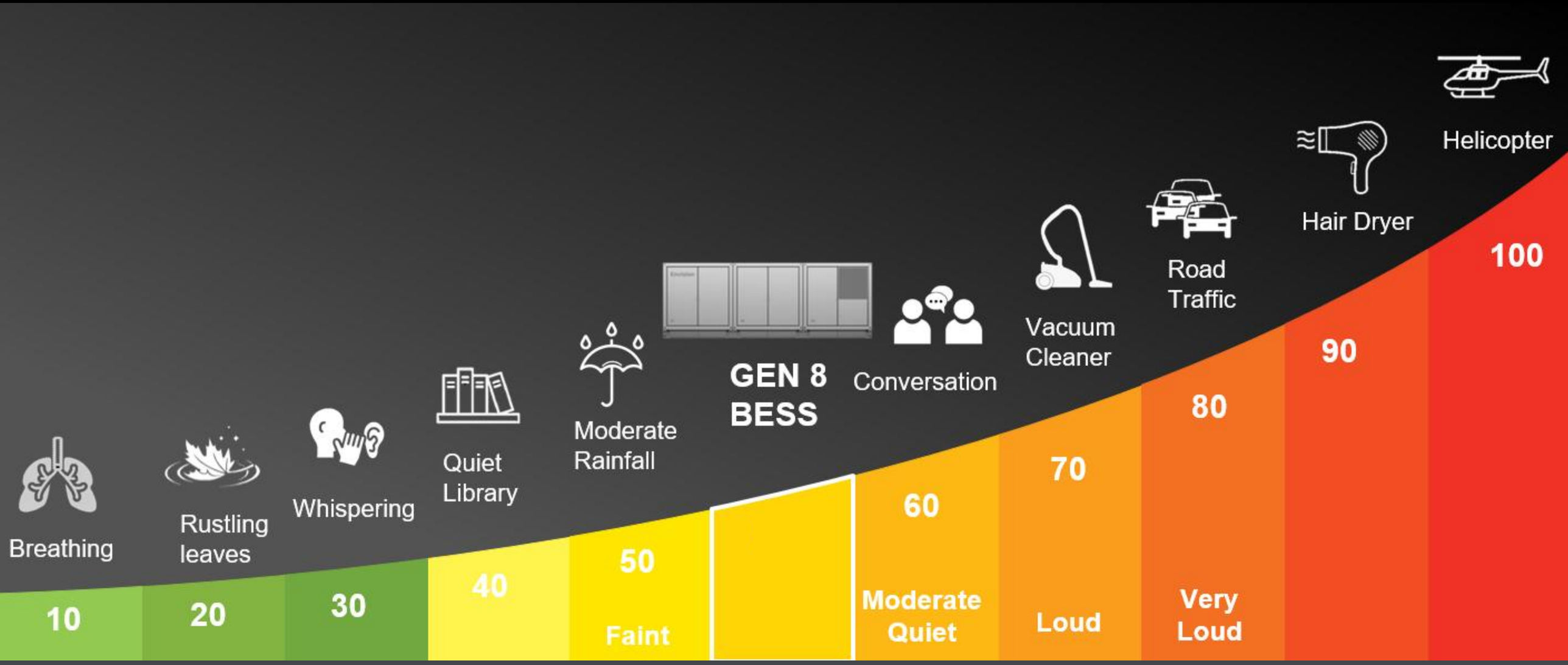


12 dB(A) Lower than Industry Tier 1



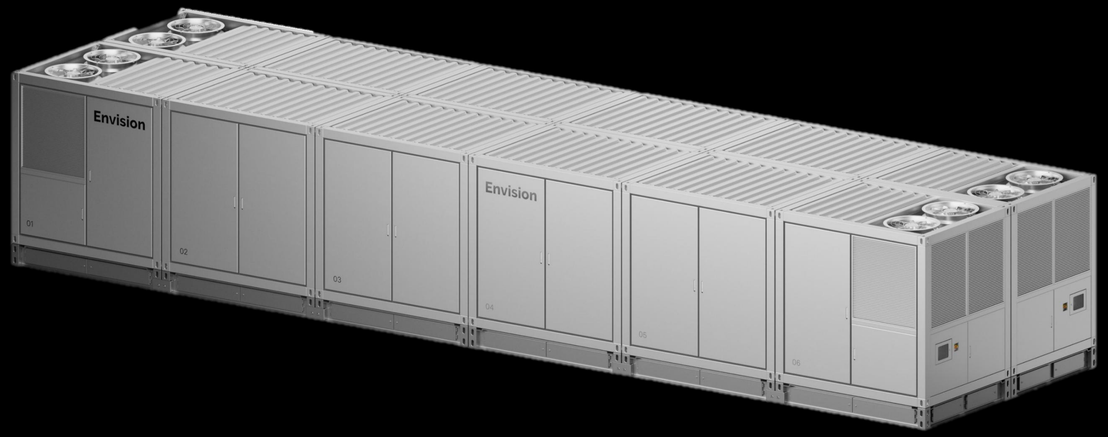
Low Noise Technology

Real G moves in silence like lasagna*



Source: "Six foot seven foot" - Lil Wayne feat. Cory Gunz

26% Footprint Reduction

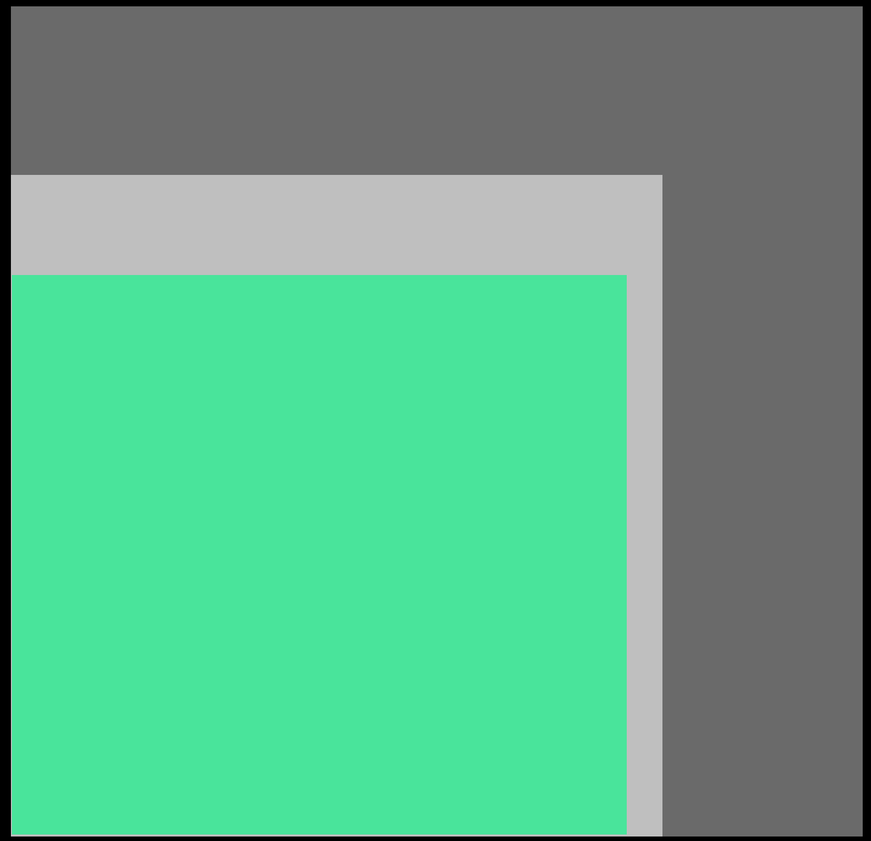


Typical cube / rack-based design 300 - 306 Ah

GEN 7: 5 MWh containerized system

GEN 8: 10 MWh scalable platform

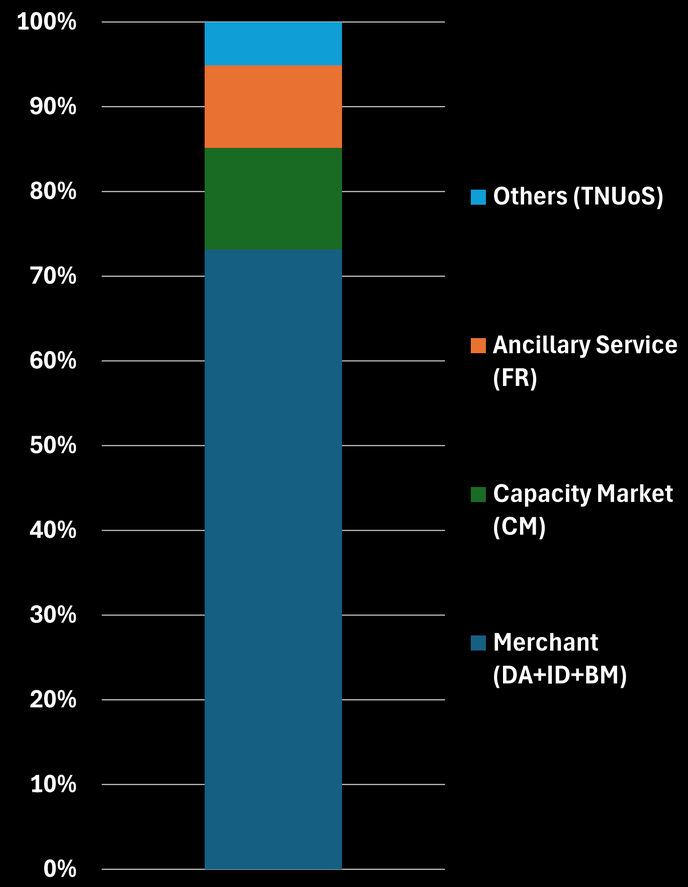
25 MW / 100 MWh Site Layout



LCOS Impact: 1.5% IRR Improvement and 1 Year Less Payback Period

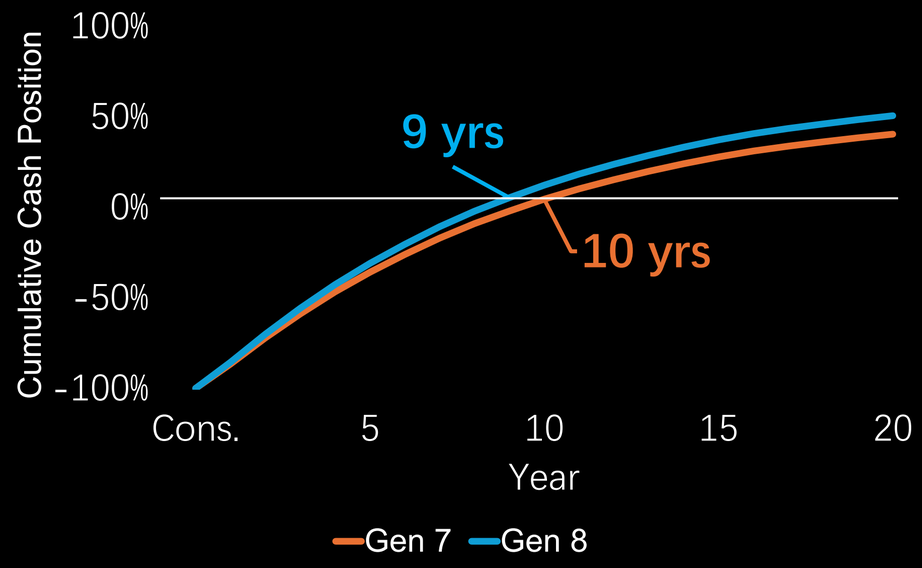
Case study: theoretical 100 MW / 400 MWh project in the UK

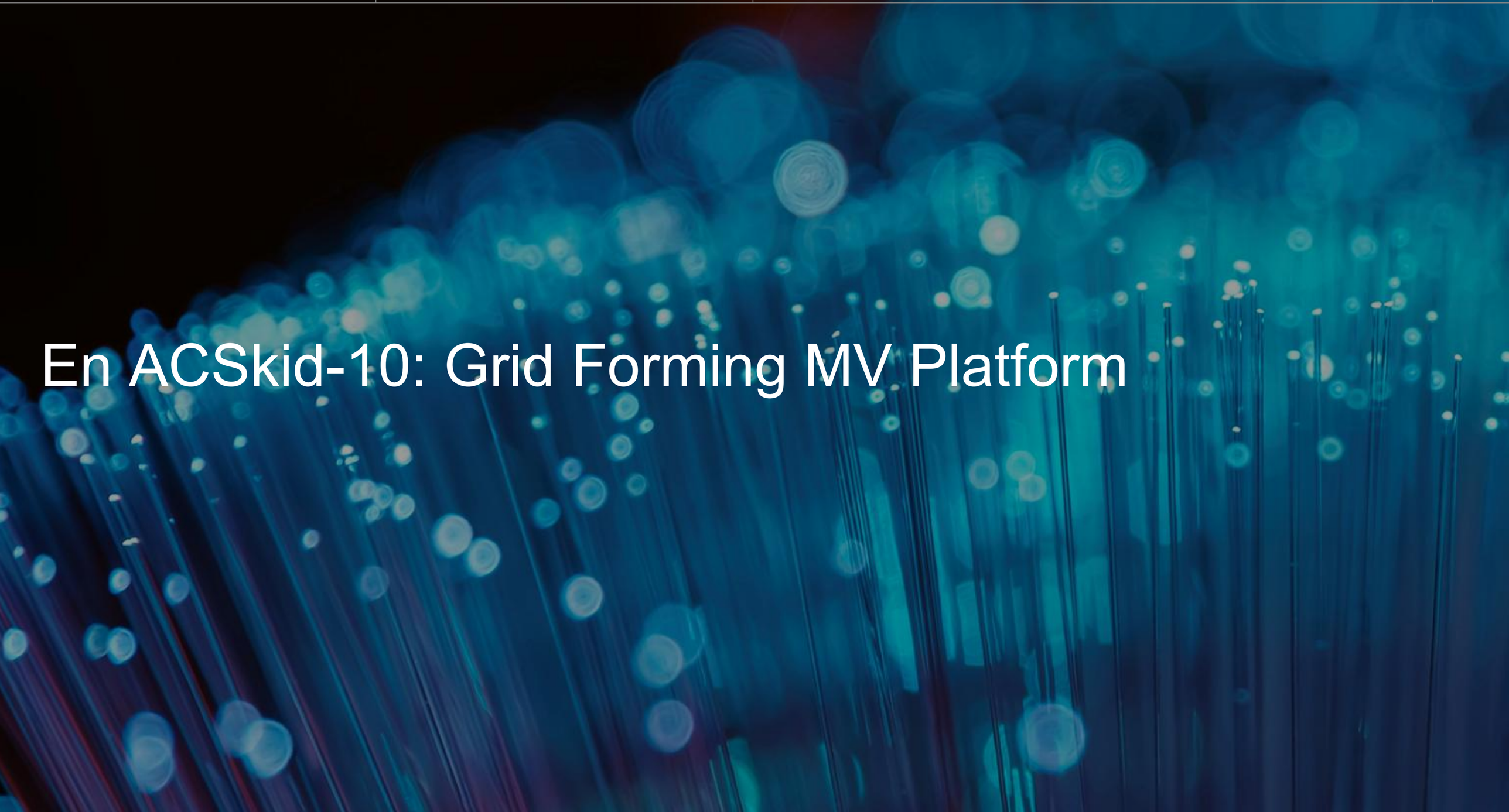
Revenue stack



Payback Period

1.5% ↑	10%	19% ↑
IRR	WACC	NPV





En ACSkid-10: Grid Forming MV Platform

10 MVA MV Skid (En ACSkid-10)

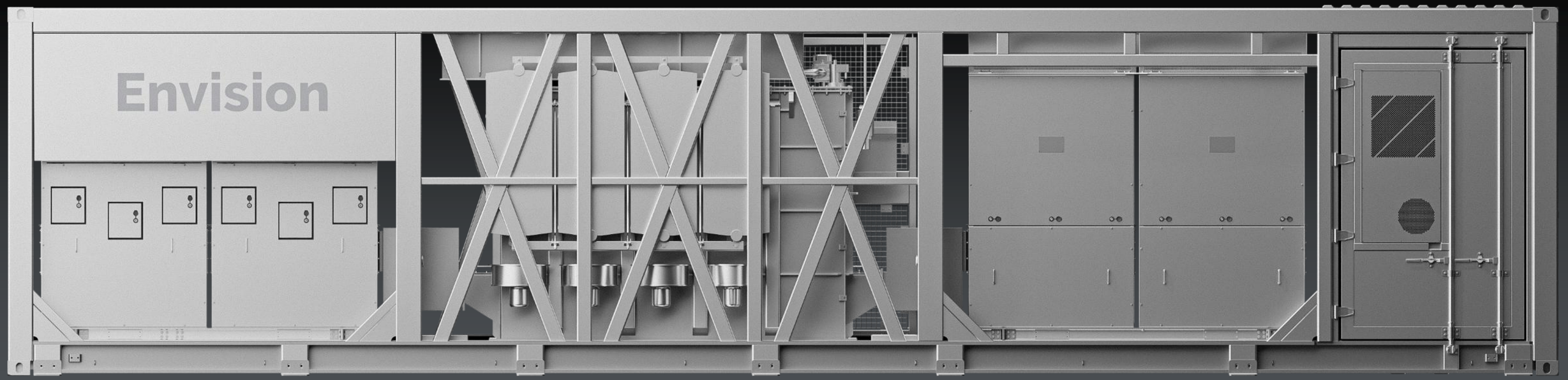
Enhanced availability and overload capability

IP65
Ingress Protection

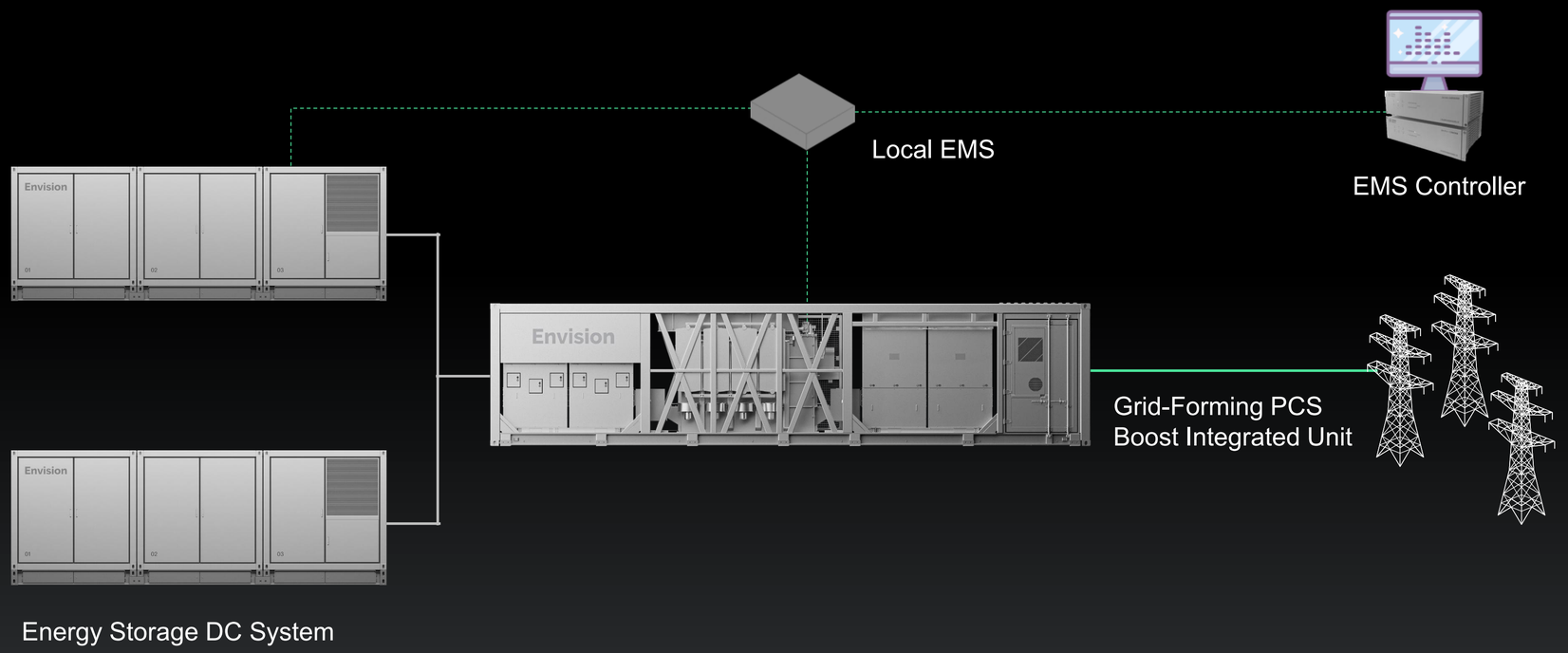
C5
Anti-Corrosion

10 MVA
Power Rating

1.5 x 10s
Overload Capability for Grid Forming



Grid Forming Energy Storage System Solution



Voltage Support

- Inherent overload capability for grid forming
- < 5ms fault response time

Frequency Support

- Stable operation with weak grid & off-grid
- Synthetic inertia support to manage frequency disturbance

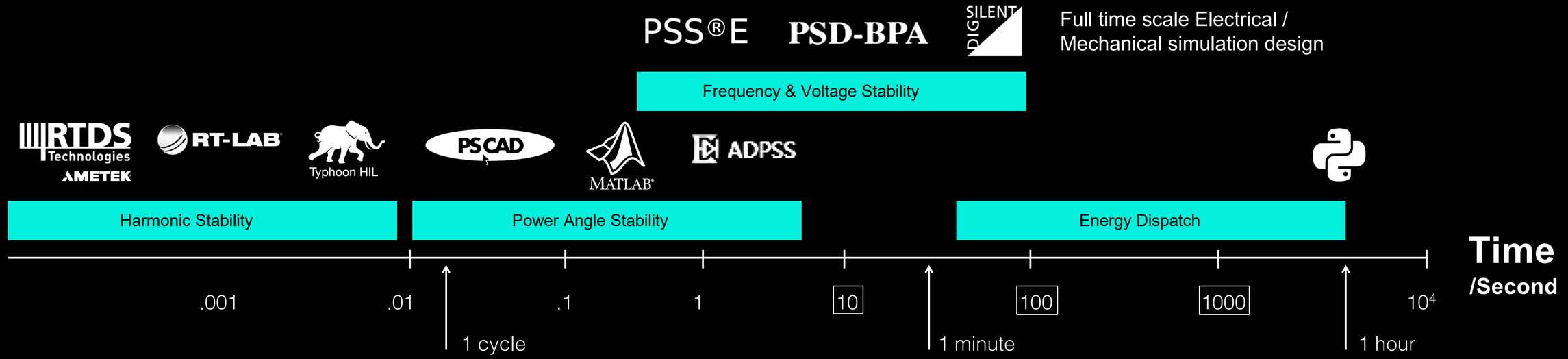
Oscillation Damping

- Wide band oscillation suppression and damping control
- Phase angle swing within ±60° without losing grid connection

Grid-Forming Capability

- GW-level black start capability
- Seamless grid connection / disconnection

System Simulation Platform



Hybrid Solution, AI-driven Diagnosis, Cybersecurity

EnOS-Powered Energy Storage Software for Utility Battery Assets

Portfolio & Trading

Site

Device

EnOS Platform

EnOS Monitoring & Control

EnOS Advanced Analytics

EnOS Flex Optimisation

EnOS Flex Trading

EnOS EMS

Forecast Scheduling
Ancillary Services
Real-time Control for Grids & Trading

EnOS EMS

EnOS SCADA for Storage

Data Management
Monitoring
Alarm

EnOS Flex Controller

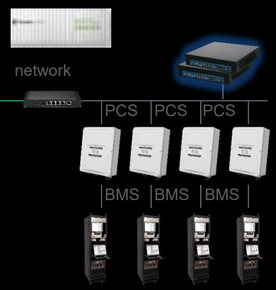
Co-optimization
Real-time Control
Monitoring

EnOS EMS HPPC

EnOS EMS & PPC for Storage

EnOS EMS & PPC for Wind

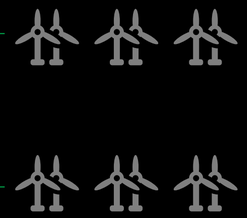
EnOS EMS & PPC for Solar

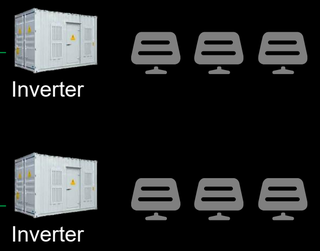


Reliable High-Frequency Data Acquisition & Cutting-edge Analytics (e.g., SoC Estimation)

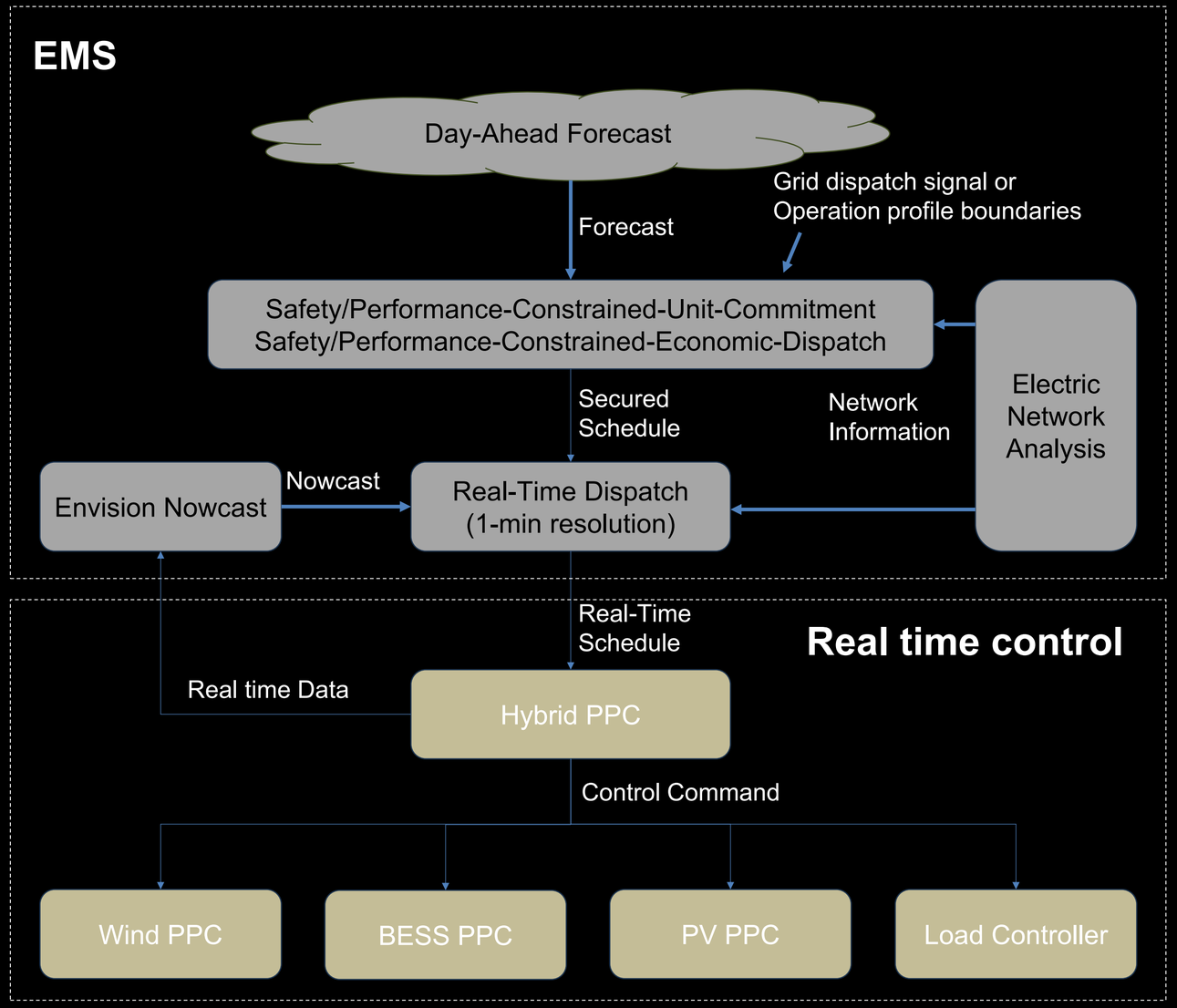
BESS Controller

BMS





One-stop Solution for Handling Complicated Operation Requirements



Key Values

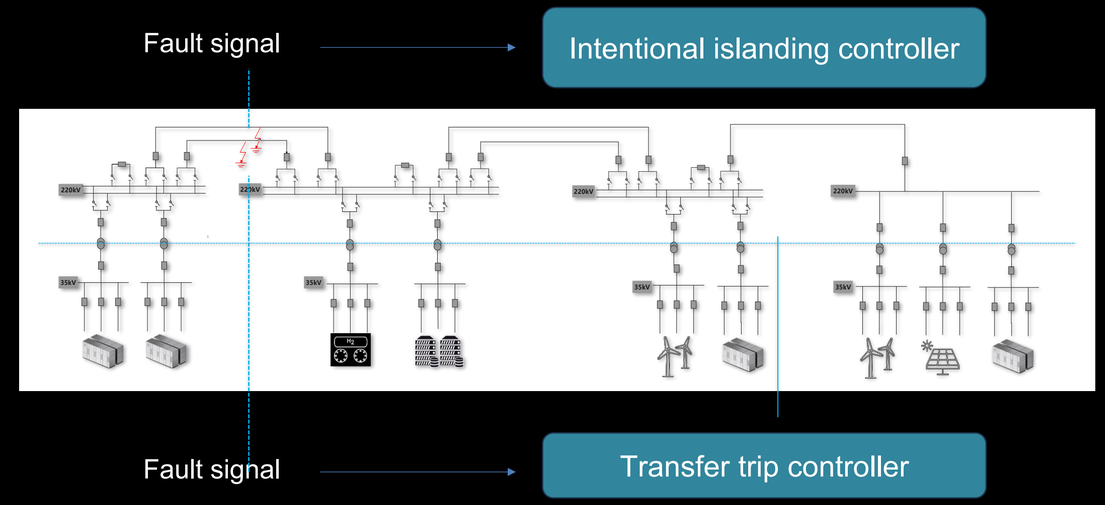
Off-grid:

- Reduce BESS redundancy by achieving RES: BESS : Load = 2:1:1
- Reduce capacity reserve by 10% while manage RES intermittency

On-grid:

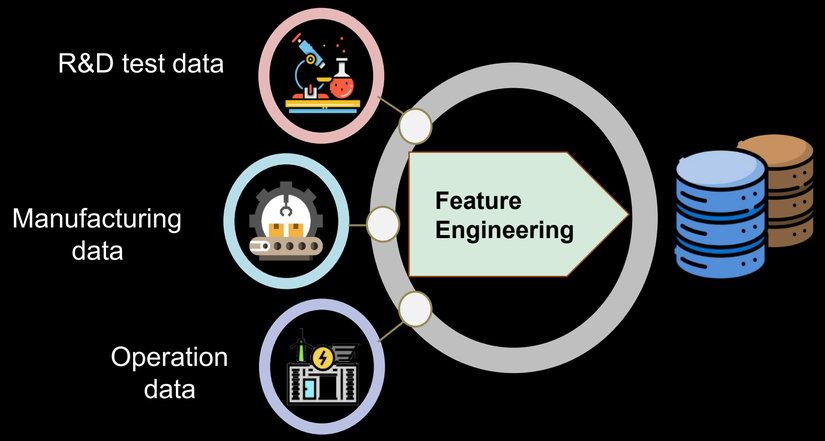
- Improve energy yield by 1%~3%
- Achieve SCR 1.2 with 20% GFM-BESS

Protection and Active Islanding

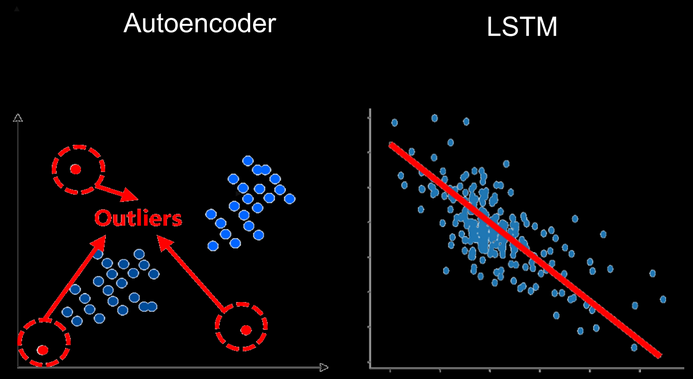


State of Safety Modeling: AI-driven Safety Diagnosis and Execution

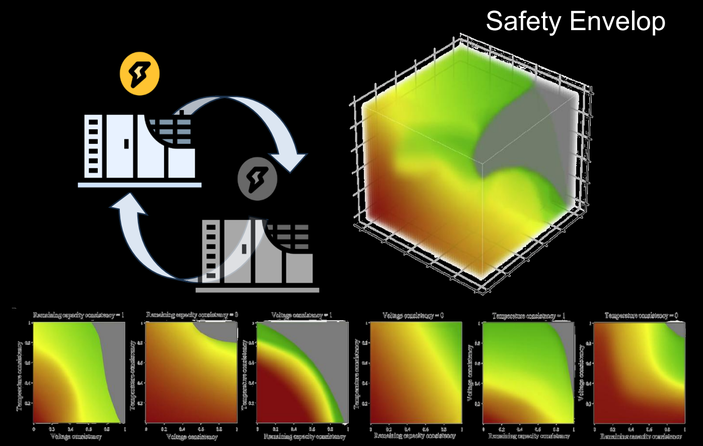
Data Aggregation



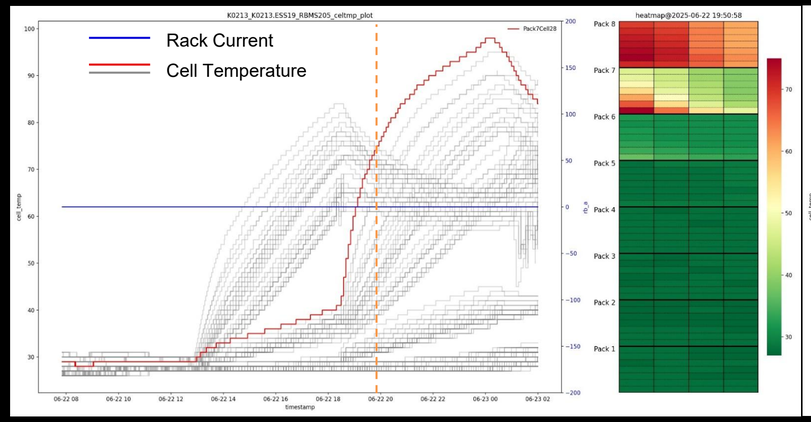
Hybrid Spatial-Temporal Model



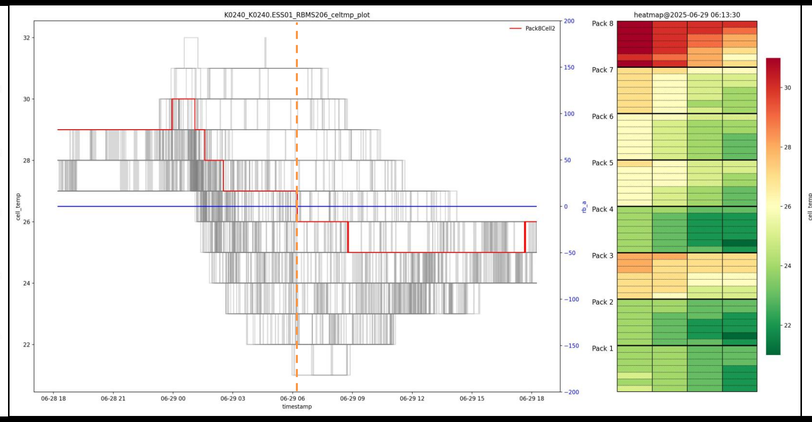
Digital Twin



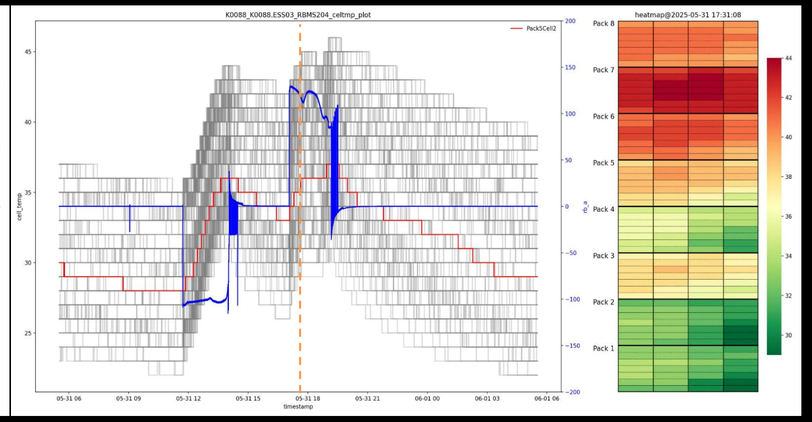
Abnormal heating from PTC



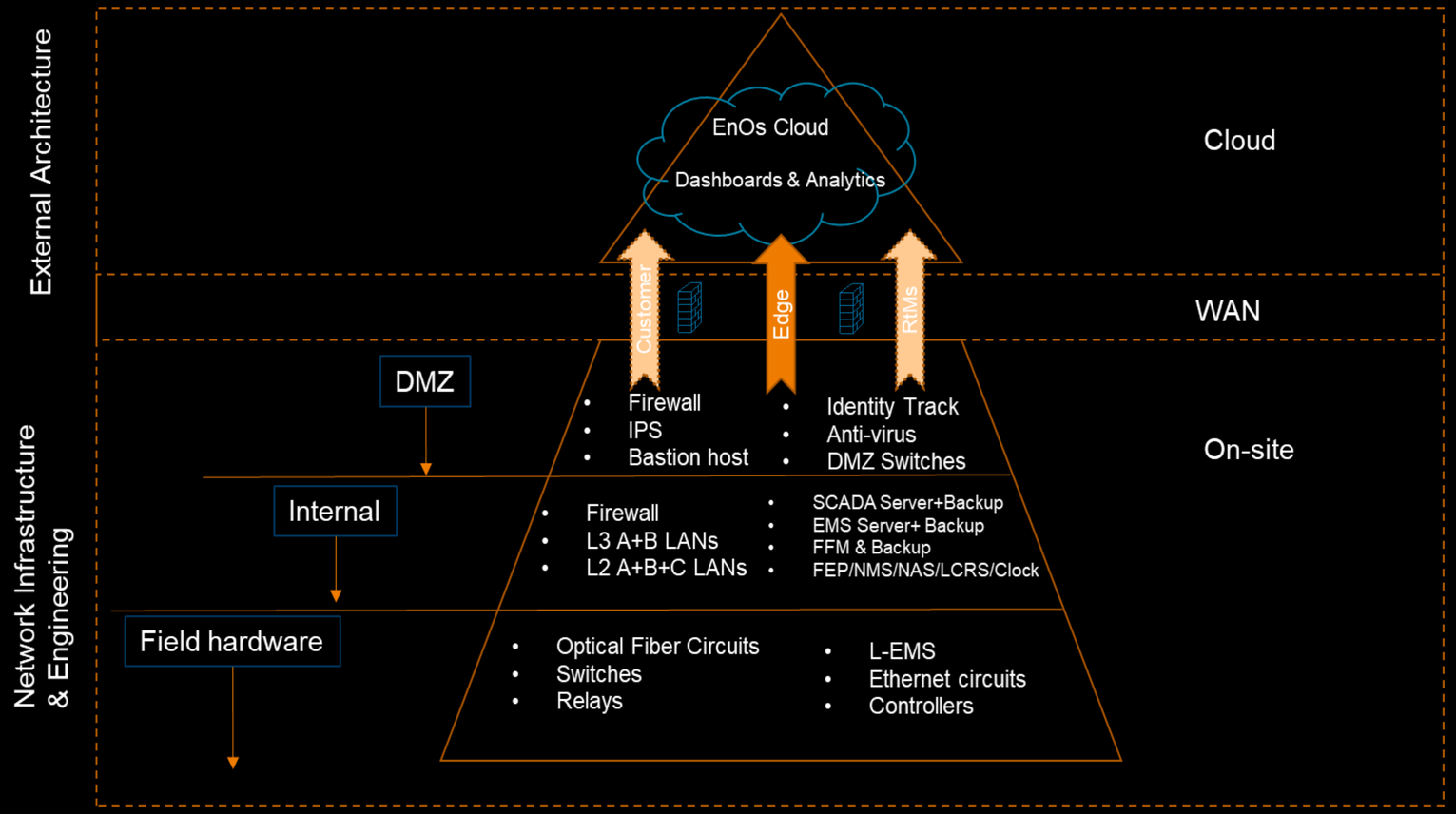
Abnormal coolant pressure loss



Low coolant level



Advanced Secure System Architecture



Complete De-Militarized Zone (DMZ)

- State-of-art Firewalls
- Intrusion Prevention
- Secure VPN Access
- Full Traceability and Identity Tracking

Defence-in-Depth Strategy

- Local Area Networks with Redundancies
- Segmented and Isolated Networks
- Continuous Network Monitoring Across Multiple Layers

Security Compliance Excellence

- SCADA and EMS Product Certified to IEC 62443-4-2
- System Architecture is complaint with IEC 62443-3-3

Prevention First Safety

Safety Lessons Learned

Key Takeaways from Battery Fire Incidents

	McMicken April 2019	Victorian Big Battery July 2021	Moss Landing Phase I & II September 2021 & February 2022	Elkhorn September 2022
Root cause and contributing factors	➢ **Cell:** Internal failure in a battery cell from dendrite growth ➢ **Containment:** Lack of thermal barriers between cells ➢ **Ventilation:** Flammable off-gases concentrated without a means to ventilate	➢ **QC:** Short circuiting of electronic component from coolant leakage ➢ **Commissioning:** Disabled telemetry, thermal management, and protection systems from a key lock	➢ **FPS:** Water sprinkler system was triggered below the designed smoke level (Phase I) ➢ **FPS:** Faulty Emergency-Stop function failed to stop the sprinklers system. (Phase I) ➢ **QC:** A leaking hose caused the suppression system to release water on battery racks causing them to short (Phase II)	➢ **QC:** Electrical short from significant water ingress ➢ **Electrical**: Failed insulation failure alert
Key takeaways	➢ Minimizing internal short circuit risk through quality control over key cell manufacturing processes ➢ Implementing Aerogel Pads for enhanced thermal and electrical isolation ➢ Ensuring effective active ventilation (NFPA 69)	➢ Mitigate coolant leakage through pressure testing at component-level and during system integration and FAT ➢ Streamlining SCADA and Equipment commissioning to ensure reliable communication throughout the commission process	➢ Adopting effective total flooding aerosol system; Associating both heat and smoke sensor for level 2 fire alarm; Applying a time delay for operators to clear false alarms ➢ Stringent reliability test on fire protection system components and coolant pipelines.	➢ Reinforcing component-level water spray tests ➢ System-level water spray tests during FAT ➢ Functional test on insulation monitoring system

Large-scale Fire Test

Burning 49+ hours without thermal propagation

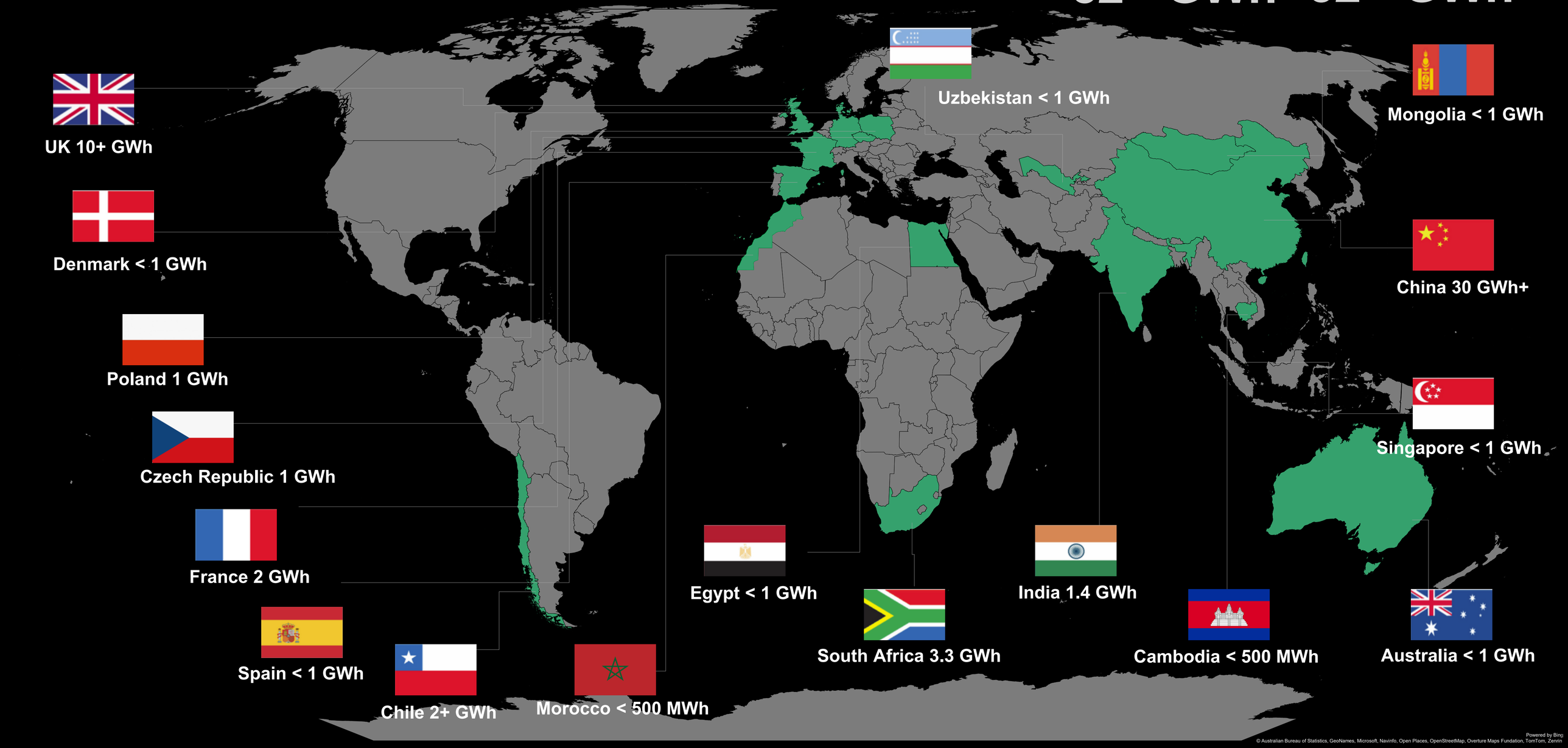
- After the onset of forced heating, it took nearly 3 hours before the development into a large-scale fire situation inside the container.
- This demonstrates the remarkable resilience of our cell and pack design to thermal runaway and fire propagation, even under aggressive, externally triggered conditions.
- The large-scale fire was sustained for 49+ hours without propagation to the adjacent containers, which validated the containment performance of the battery enclosure.

Global Footprint and Case Studies

BESS Global Projects

Globally awarded total
52+ GWh

Globally in delivery and in operation
32+ GWh



The "New Oil Revolution" in Chifeng

Envision has set up the world's first operational net zero industrial park with green hydrogen & ammonia production as its core in Chifeng. As one of the biggest green ammonia plants worldwide, planned production scale is megaton per year. Envision is providing the best integrated value chain solution of green hydrogen through efficient energy utilization, flexible & safe system design, and economical solutions.

Envision has officially commissioned the world's largest and most advanced green hydrogen and ammonia production facility in Chifeng, delivering 320,000 tons of green ammonia annually.

The World's First Net Zero Industrial Park A Global Lighthouse for Renewable Energy System

Through its partnership with the Ordos government, Envision has established the world's first net zero industrial park. By 2025, it aims to achieve a green industrial output worth tens of billions of USD, create tens of thousands of green high-tech jobs, and cut carbon emissions by over 100 million tons per year.


Era of Oil
Era of Renewables
Envision

Envision

Thank You !

Chi Zhang
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Optimized for LCOS Success: 750+ Ah cells in 10-foot containers, the next generation of scalable storage

Q&A

21 November 2025

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8:00 am – 9:00 am | CST, Mexico City

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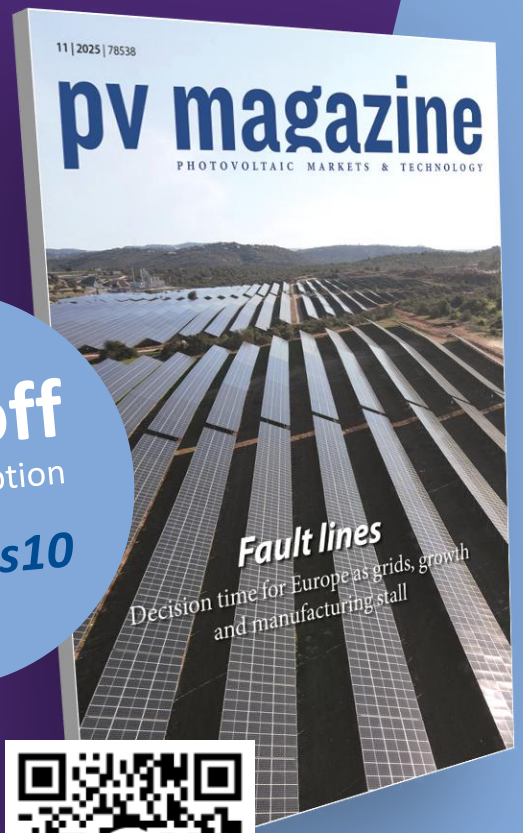

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[Ireland surpasses 2 GW of installed solar capacity]

by Blathnaid O'Dea

['It's not a matter of sodium versus lithium, we need both']

by Emiliano Bellini

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Coming up next...

Monday, 24 November 2025
9:00 am – 10:00 am GMT, London
10:00 am – 11:00 am CET, Berlin

The future of intelligent energy management with SolaX XHub

Thursday, 27 November 2025
9:00 am – 10:00 am CET, Berlin
1:30 pm – 2:30 pm IST, Delhi

Scaling back contact for every scenario

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