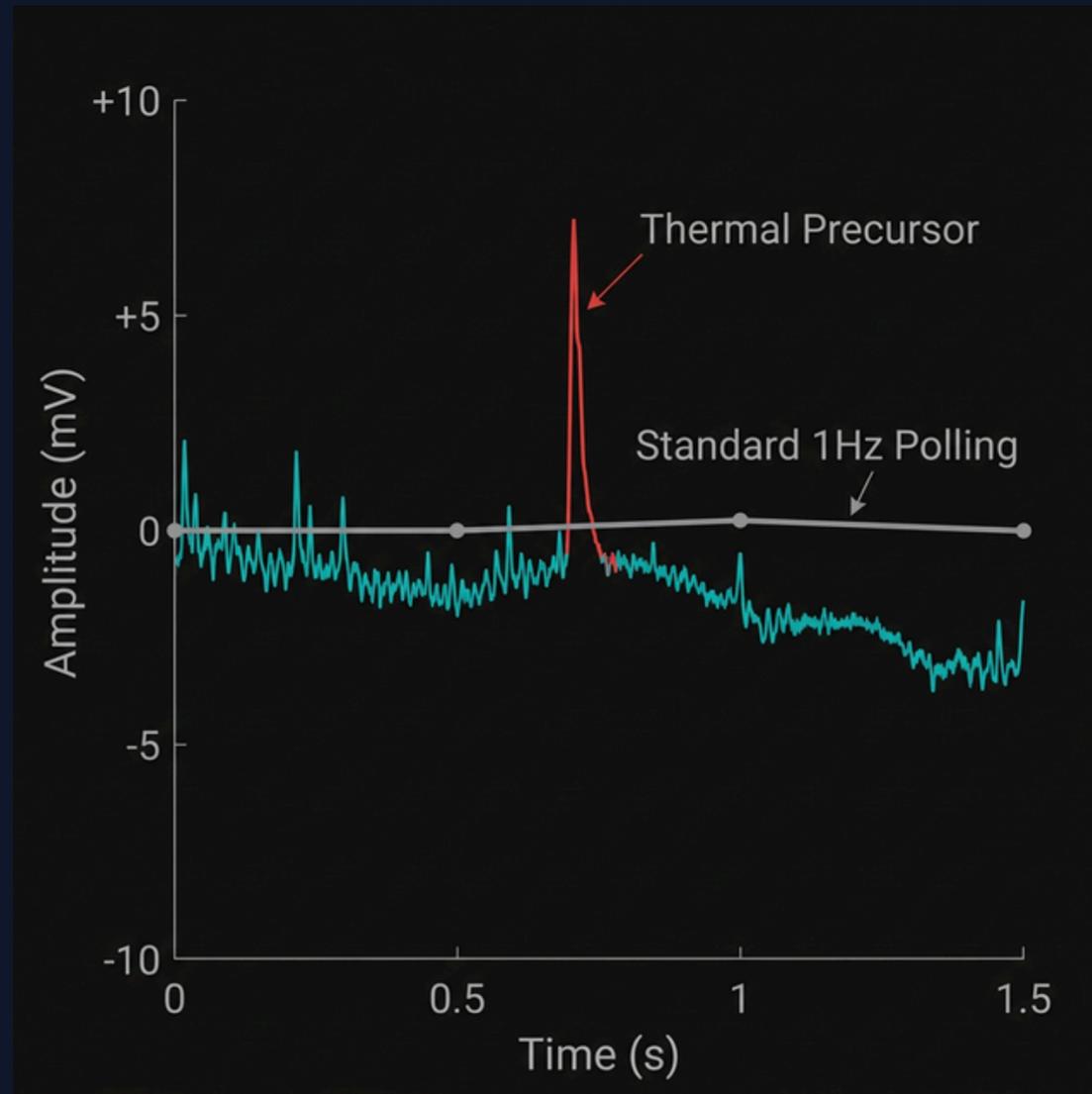**BESS and Solar Asset Intelligence for Critical Infrastructure**

Oxaide: Independent BESS & Solar Diagnostics

Principal-led forensic review and on-site monitoring for
operators who need more than dashboard summaries

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The Problem - The Signal Exists. Most Teams Never See It.

Your battery management system polls at 1Hz. What happens between readings, including micro-thermal spikes, electrochemical drift, and early signs of lithium plating, is usually invisible when decisions are being made.

This gap matters because serious failures rarely arrive without warning. The warning is often there in the telemetry long before the dashboard makes it obvious.

By the time a standard dashboard makes the issue obvious, the operator is already dealing with degraded performance, a handover dispute, an insurer question, or a formal failure review. Oxaide exists to answer the question earlier: what was already present in the telemetry, and what does it actually mean?

The Method - Reconstruct The Signal.

Oxaide starts from a simple view: the asset usually already contains the signal. The issue is not the absence of data. The issue is that most monitoring stacks compress, smooth, or ignore the patterns that matter.

We use physics-informed analysis, including dQ/dV and resistance profiling, to reconstruct degradation behaviour from telemetry the operator already holds. When continuous coverage is warranted, Horizon runs as a compiled Rust service at the edge so detection stays close to the asset and inside the site's operating boundary.

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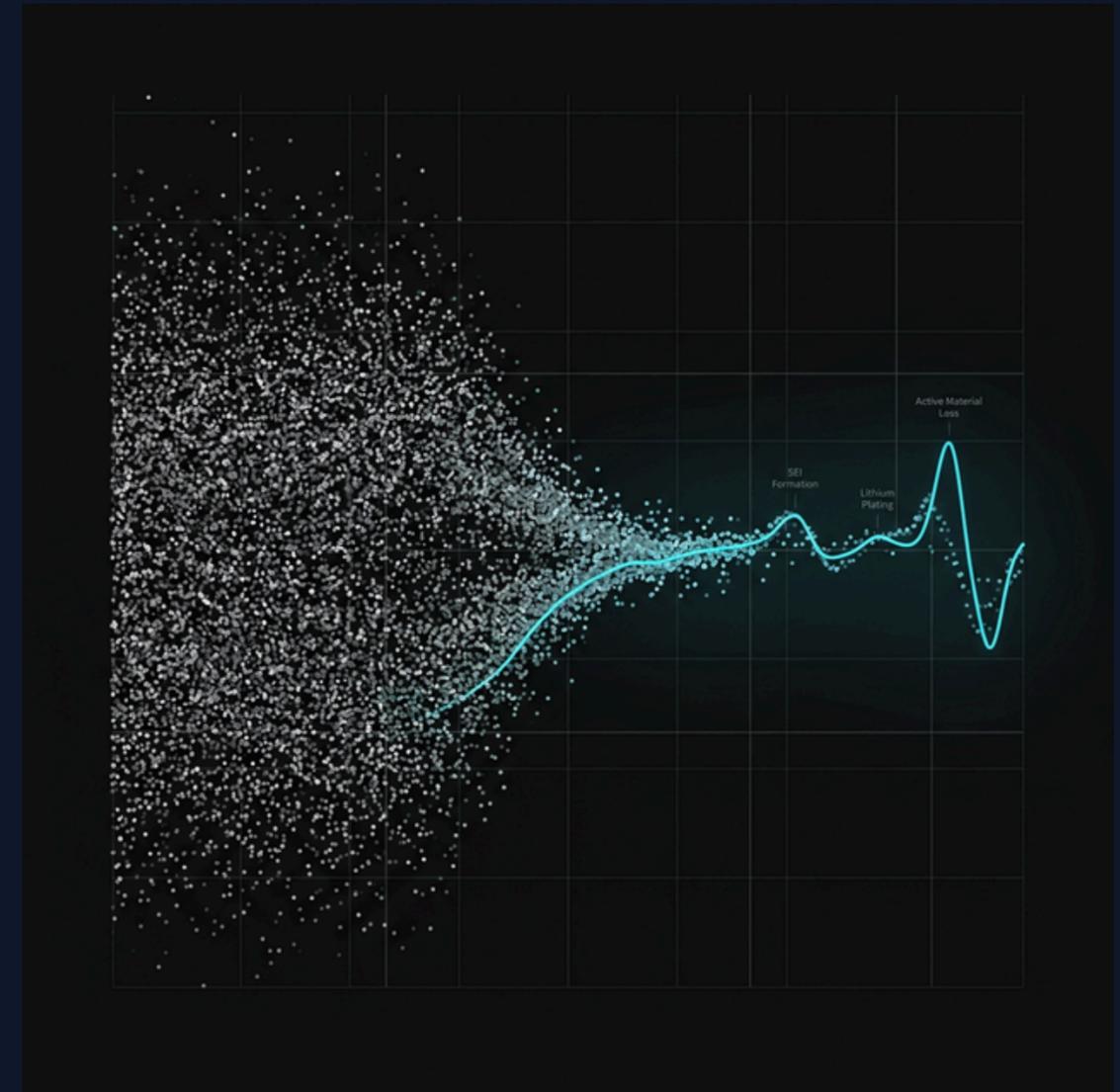
Validation Provenance

Dataset	Institution	What it validates
Oxford Battery Degradation Dataset	University of Oxford (UK)	dQ/dV cycle analysis, LLI/LAM chemical isolation
NASA PCoE Prognostics Repository	NASA Ames Research Center (US)	Impedance profiling, remaining useful life prediction
NREL PVWatts Validation Suite	U.S. National Renewable Energy Lab	Cross-asset solar yield forensics

The method is anchored to public datasets and references that engineering teams can inspect independently. We would rather show where the method is grounded than ask anyone to trust a black box.

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Where The Work Matters

Oxaide is built for energy asset operators who need an independent technical view, not another layer of dashboard presentation.

BESS Operators and Utilities - We reconstruct what the battery was actually doing at a chemical level from the cycle data already on hand. Lithium plating, capacity fade, and thermal precursors can surface in the review before they become obvious in standard alerts.

Solar IPPs and Asset Managers - Inverter clipping, soiling drift, and inter-string mismatch that standard reporting can miss show up in the yield forensics output. The same method stack that reads battery degradation can also read PV performance curves.

O&M and EPC Contractors - A Verify review on handover data gives the client an independent baseline at the start of the O&M contract. That baseline becomes the reference point for later warranty, performance, and insurance discussions.

One Engine. Every Asset. From CSV to Forensic Audit.

Verify Is The Sensible Starting Point

Most operators already have the data needed to start. Send telemetry such as voltage, current, temperature, and cycle logs, and we reconstruct the degradation picture from first principles without hardware procurement, site integration, or a long pre-sales cycle.

The output is a clear forensic review: which anomalies are present, what is likely driving them, and what the telemetry supports. This is the standard starting point for diligence, issue clarification, renewal preparation, and fleet-level triage.

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Horizon Is For Persistent Operating Need

When Verify surfaces something worth watching continuously, Horizon becomes the next step.
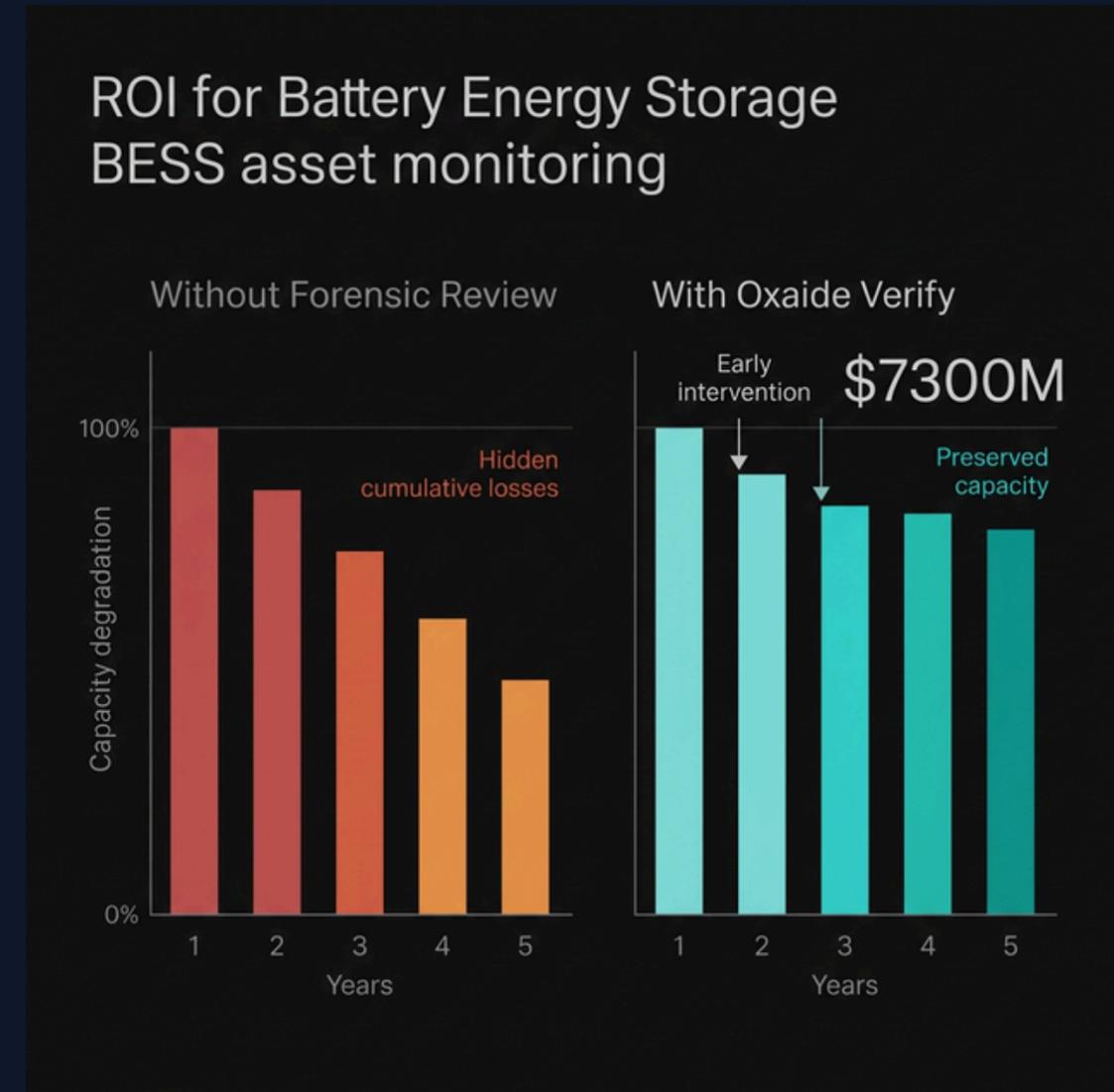
We train the monitoring logic against the site's operating profile, then deliver a compiled Rust service that runs on-site, connects to BMS and SCADA data, and extends the diagnostic signal into day-to-day operations without pushing the core logic outside the customer boundary. It is not the default starting point. It is the right step when the site genuinely needs ongoing coverage.
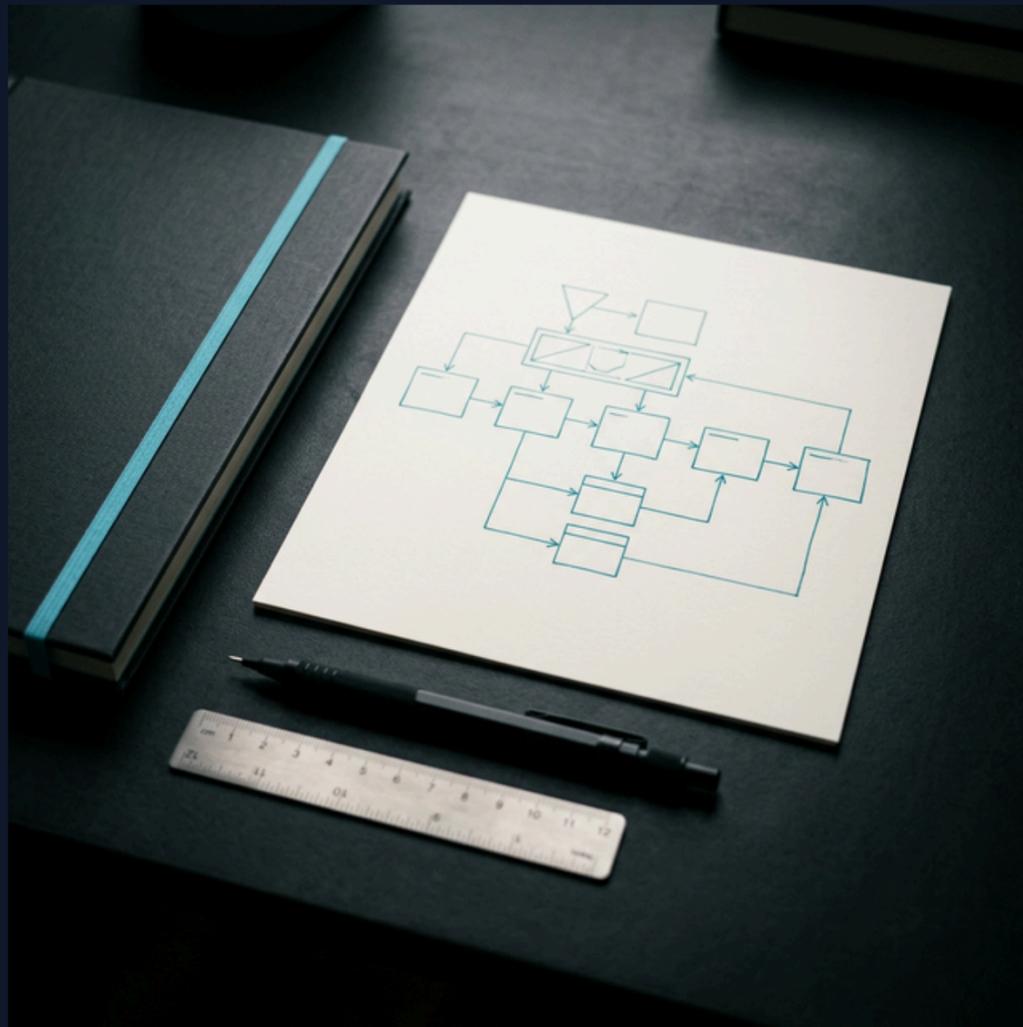
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Why The Issue Matters

The commercial case is not about buying another analytics story. It is about making hidden loss legible before it compounds.

A BESS portfolio with undetected degradation can lose usable life long before the issue becomes obvious in standard dashboards. The exposure usually appears first in performance drag, warranty tension, insurer scrutiny, or replacement planning.

For solar assets, clipping, soiling drift, and inter-string mismatch can sit quietly across the asset life until a performance review forces a closer look. Verify makes the issue visible from existing data. Horizon extends that visibility where the operating case is strong enough to justify continuous coverage.

ROI for Battery Energy Storage
BESS asset monitoring

Without Forensic Review — With Oxaide Verify

Early intervention — $7300M

Hidden cumulative losses

Preserved capacity

Capacity degradation — 100% — 0% — Years

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How Oxaide Is Scoped

We scope engagements conservatively, keep deployment boundaries explicit, and document what the method can and cannot support before work begins. We prefer a tighter promise with clean handover over a broader promise that creates governance debt later.

For Singapore-based teams, we can support IM8 and PDPA review workflows as part of the engagement. For broader deployments, we align the handover and operating model to the customer's internal security and infrastructure requirements rather than forcing a generic SaaS pattern.

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What To Send First

Send one week of battery or solar telemetry. We review signal quality, outline what the data can actually tell us, and recommend the right starting path: Verify first, Horizon if the site justifies continuous coverage, and broader deployment planning only when the operating case is real.

Work is kept deliberately scoped so each engagement receives direct senior review.

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