Cellect

Battery Asset Management Summit Europe 2025

From Megawatts to Gigawatts: Strategies for Scaling Utility-Scale BESS

December 2nd, 2025 · 12:20 - 12:40

Presented by

Leon Gosh

Founder and Managing Director of Cellect Energy

Leon Gosh has over a decade of experience in the BESS market. Over the past four years, he has dedicated himself to analyzing the operation of BESS portfolios, delivering practical and effective solutions tailored to the needs of BESS asset managers.

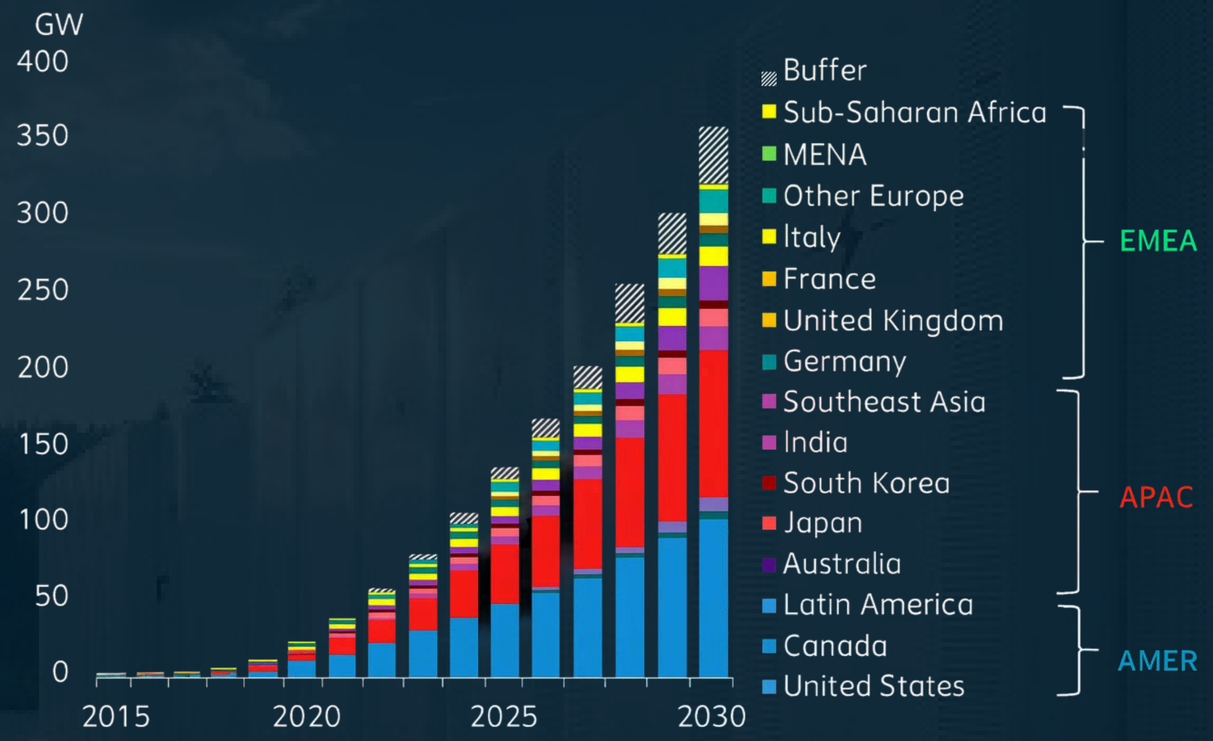
Industry Context

BESS Is Scaling — So Are the Stakes

- In Great Britain, the average BESS project size has increased by ~70% since 2019 (Modo Energy, 2024).
- Across Europe, installed capacity is expected to exceed 50 GW by 2030 — an €80bn investment wave (Reuters, 2025).
- In Great Britain, revenue swings from €65k–€102k/MW-yr (Aug 2024–Jan 2025, Modo Energy) show volatility that challenges forecasting.
- In Germany, performance stabilizes around €150k/MW-yr (Kyos, 2024), creating a new reference point for continental operators.

Expansion brings complexity: more assets, markets, and data silos to manage.

Global cumulative energy storage installations (2015 -2030)



Global cumulative capacity reaches 400+ GW in 2030

Europe shows 70% increase in project size with GWh sites in 2027

Europe to increase 5x until 2030 with €80B investment

Sources: Reuters; Bloomberg NEF

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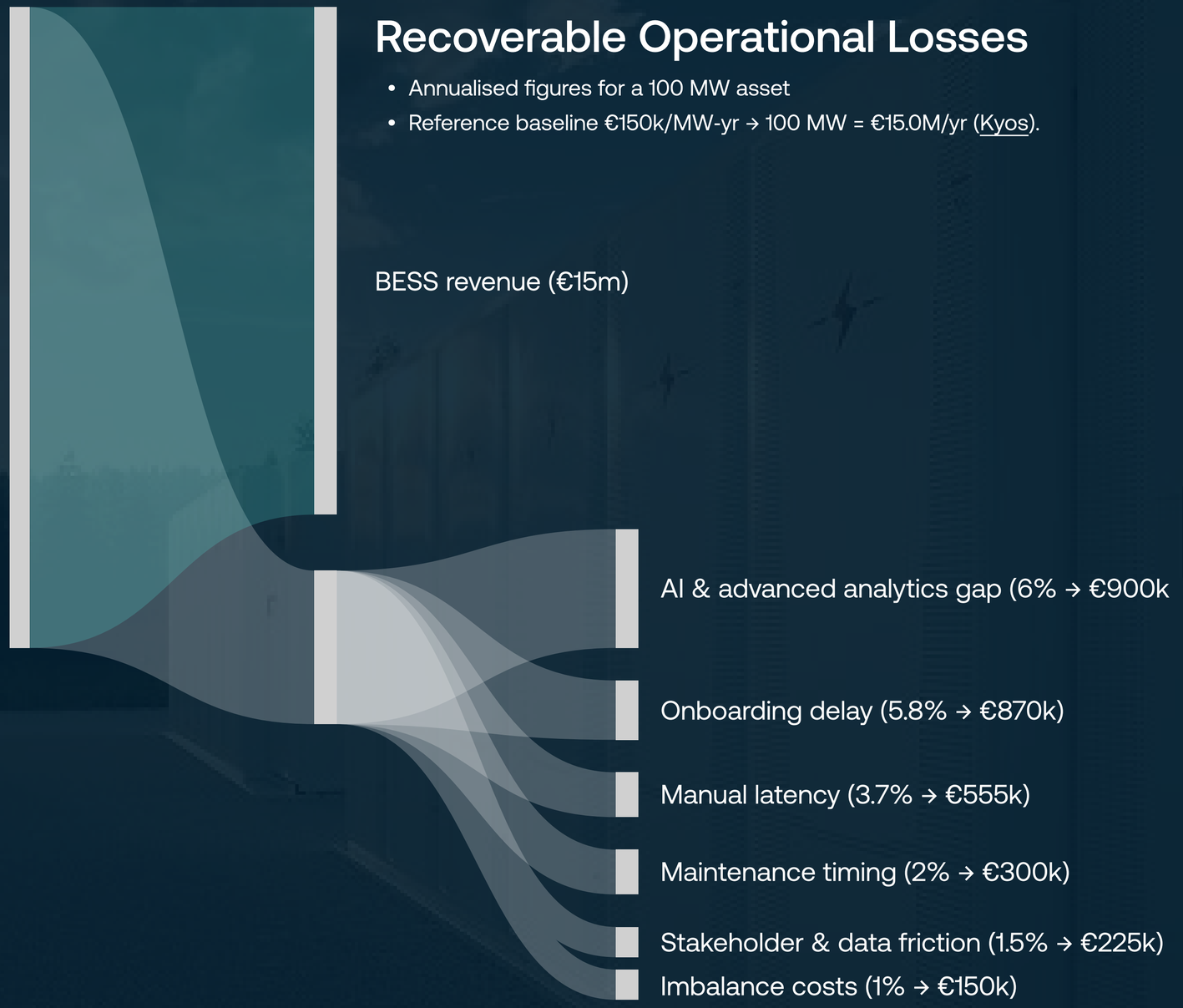
Where the Money Leaks — Recoverable Revenue Losses

1. **Imbalance costs**
   Setpoint ≠ metered grid output
2. **Stakeholder & data friction**
   Access gaps, slow cross-team alignment
3. **Scheduled maintenance inefficiency**
   Poorly timed downtime
4. **Manual latency**
   Slower resolution due to fragmented communication and missed optimization
5. **Onboarding delays**
   Data & warranty logging not production-ready at COD
6. **Underused AI & Advanced Battery Analytics**
   Not leveraging predictive insights and SoC accuracy across the portfolio



Clarification: This slide quantifies where revenue leaks occur — each category represents recoverable value that can be addressed through the improvements explored in the following slides.

Imbalance Costs — When Setpoints and Delivery Diverge

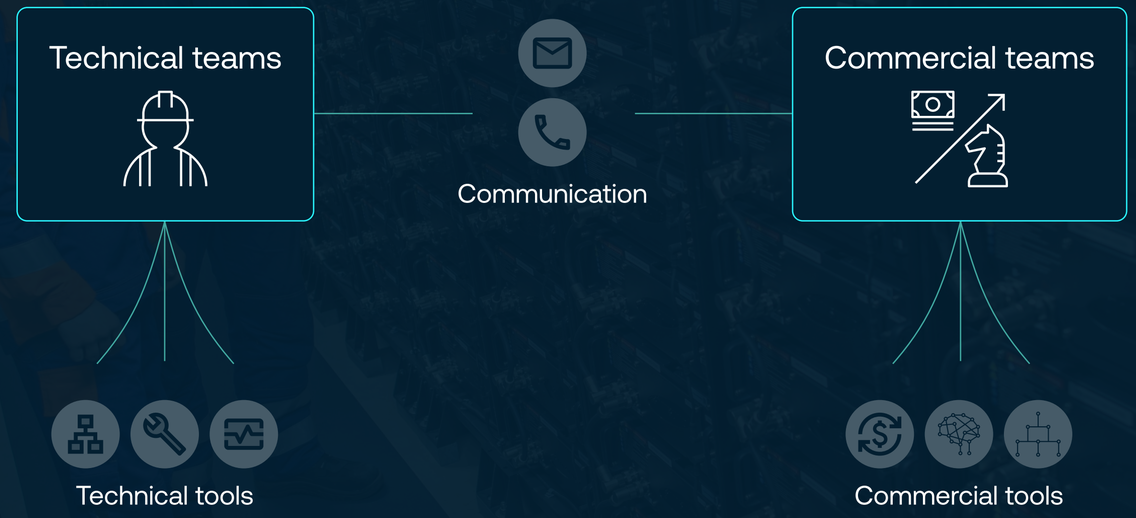
Imbalance costs represent ~1% (€150k/yr @ 100 MW) of recoverable revenue loss

- Traders and asset managers must view both the dispatch schedule (setpoint) and metered power at the grid connection (GCP) to detect small deviations before they compound.
- Consistent visibility ensures mismatches are caught early, preventing weeks of unnoticed underperformance.
- Unlike PV or wind, where imbalances stem from forecast errors, BESS operations suffer from ramp-rate limits and frequent switching, making real-time coordination critical.
- Joint access to data between commercial and technical teams reduces imbalance charges and improves delivery precision.

Traditional silos slow down communication and lead to measurable financial losses.

Technical teams use SCADA/EMS tools for monitoring and troubleshooting.

Commercial teams use market trading platforms and optimization tools.



This separation creates data silos and slows communication. Updates via email or tools like Teams, delay fixes, reduce availability, and lead to trades on offline assets, driving imbalance costs.

Stakeholder & Data Friction — Many Systems, Many Interfaces

Access gaps and siloed systems drive ~1.5% (€225k/yr @ 100 MW) of avoidable loss.

What a BESS asset manager actually juggles (example 10-site portfolio):

4 battery OEMs (different gateways/protocols)

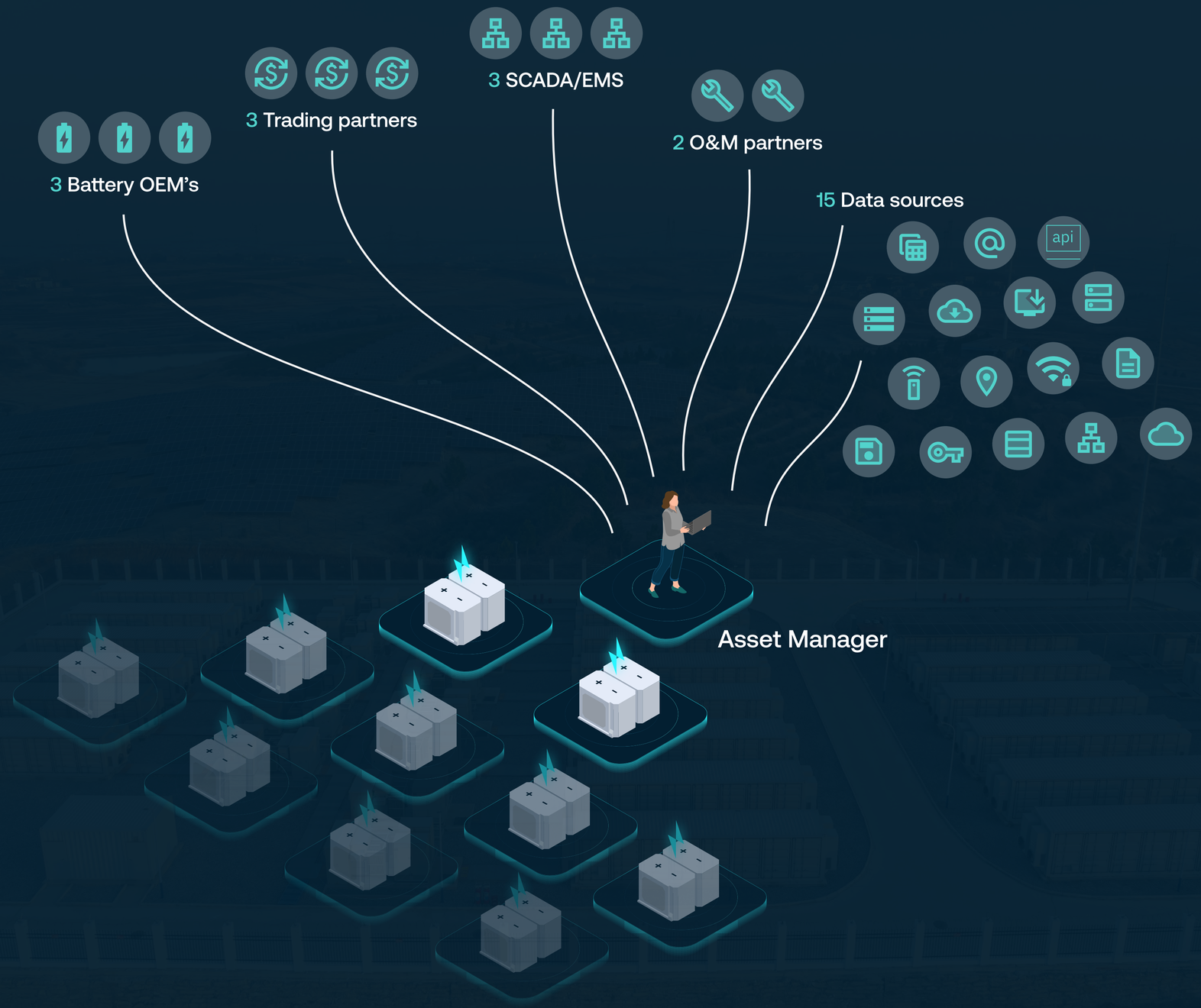
3 SCADA/EMS integrators (distinct UIs and export formats)

3 trading partners (dispatch data, market data, revenue reports)

3 O&M partners (work orders, alarms, maintenance logs)

5 investors requesting financial and performance reporting in different templates.

15 data sources (market APIs, site gateways, S3 buckets, spreadsheets, SMTP, etc.)



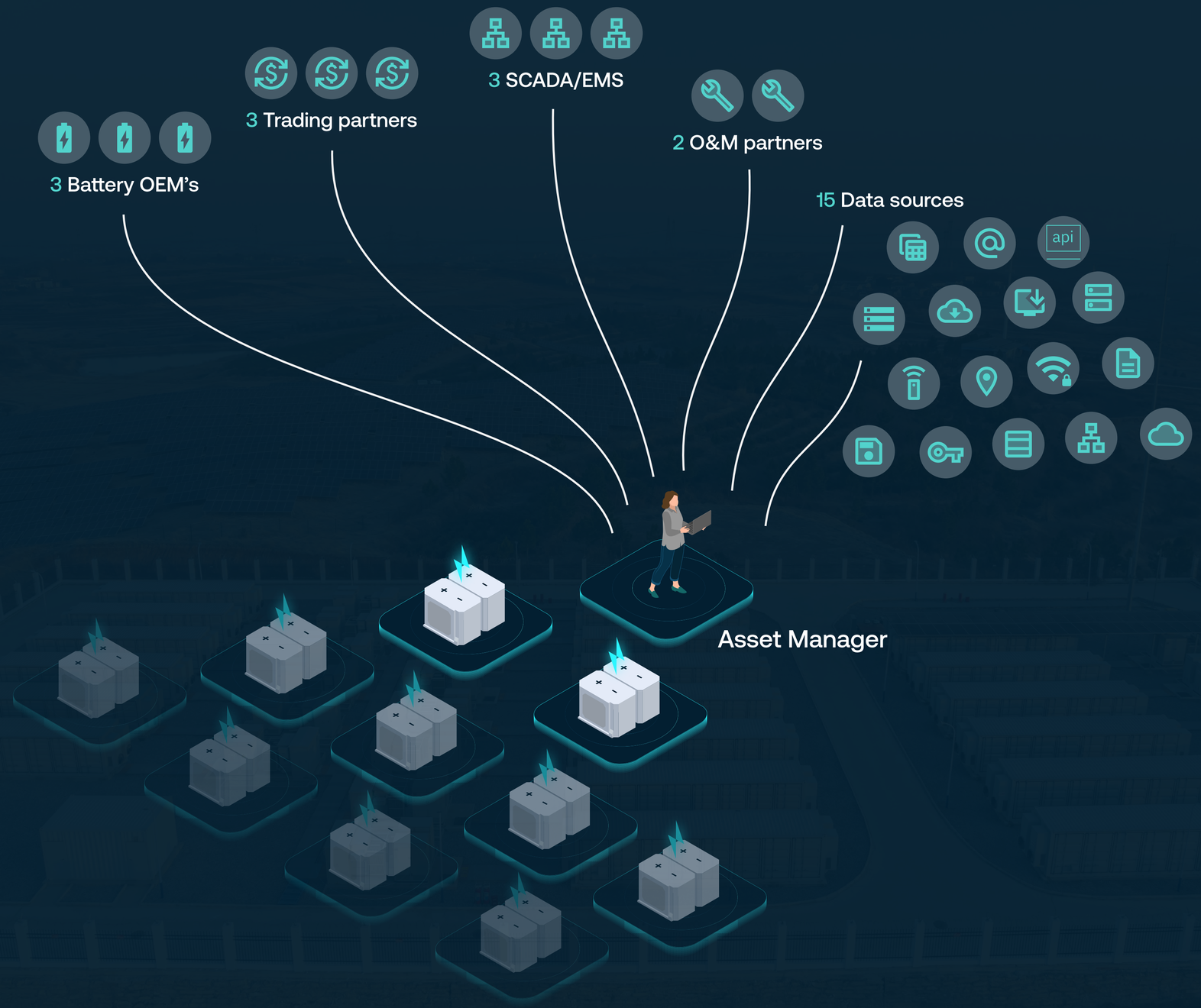
Stakeholder & Data Friction — Many Systems, Many Interfaces

Access gaps and siloed systems drive ~1.5% (€225k/yr @ 100 MW) of avoidable loss.

What a BESS asset manager actually juggles (example 10-site portfolio):

- Time loss: hours spent reconciling inconsistent data across systems and stakeholders.
- Revenue leakage: missed/contradictory updates between OEM, trading, and O&M systems delay response.
- IT exposure: more external connections (VPNs, shares, manual pulls) increase risk.
- Operational opacity: hard to see true performance and prioritise across sites.
- Scalability limits: coordination becomes unsustainable beyond ~10–15 assets without standardisation.

Outcome: unify access and nomenclature so engineering, trading, O&M and finance work off the same definitions and KPIs.



Scheduled Maintenance Inefficiency — Poor Timing, Lost Revenue

Poorly planned maintenance timing leads to ~2% (€300k/yr @ 100 MW) revenue loss.

What to do:

Quantify the windows

Assume ~10 days/year (≈240 h) of planned maintenance at fleet level.

Revenue-aware scheduling

Overlay maintenance windows with the revenue forecast derived from the trading party's dispatch schedule (setpoint-based expected capture) and site availability forecasts; aim to move 100% of downtime into low-revenue hours, while acknowledging constraints. For planning and ROI, we assume ≥50% of downtime can be shifted.

Lock-in with guardrails

Freeze windows only when volatility thresholds and market events (e.g., auctions, reserve tenders) are known; re-check minimum SoC guardrails and other site availability constraints.

Rolling re-optimization

re-evaluate weekly with a 4-week look-ahead; avoid stacking maintenance across multiple sites at the same time if it affects portfolio revenue; and be ready to pause/reschedule to capture sudden high-revenue opportunities that arise during maintenance.

Combining revenue forecast and planning of maintenance

Manual Latency — Slow Processes, Slower Decisions

Manual data handling and communication delays cause ~3.7% (€555k/yr @ 100 MW) of recoverable loss.

Data wrangling

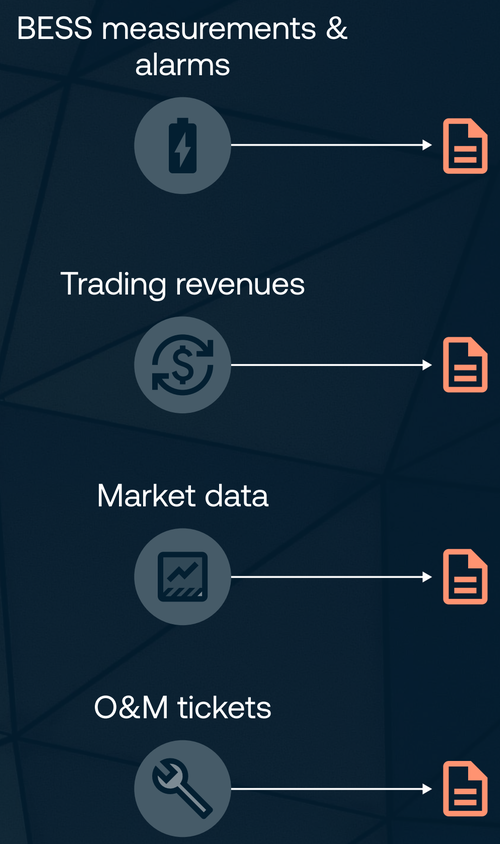
Spreadsheets and fragmented tools steal time from analysis and action.

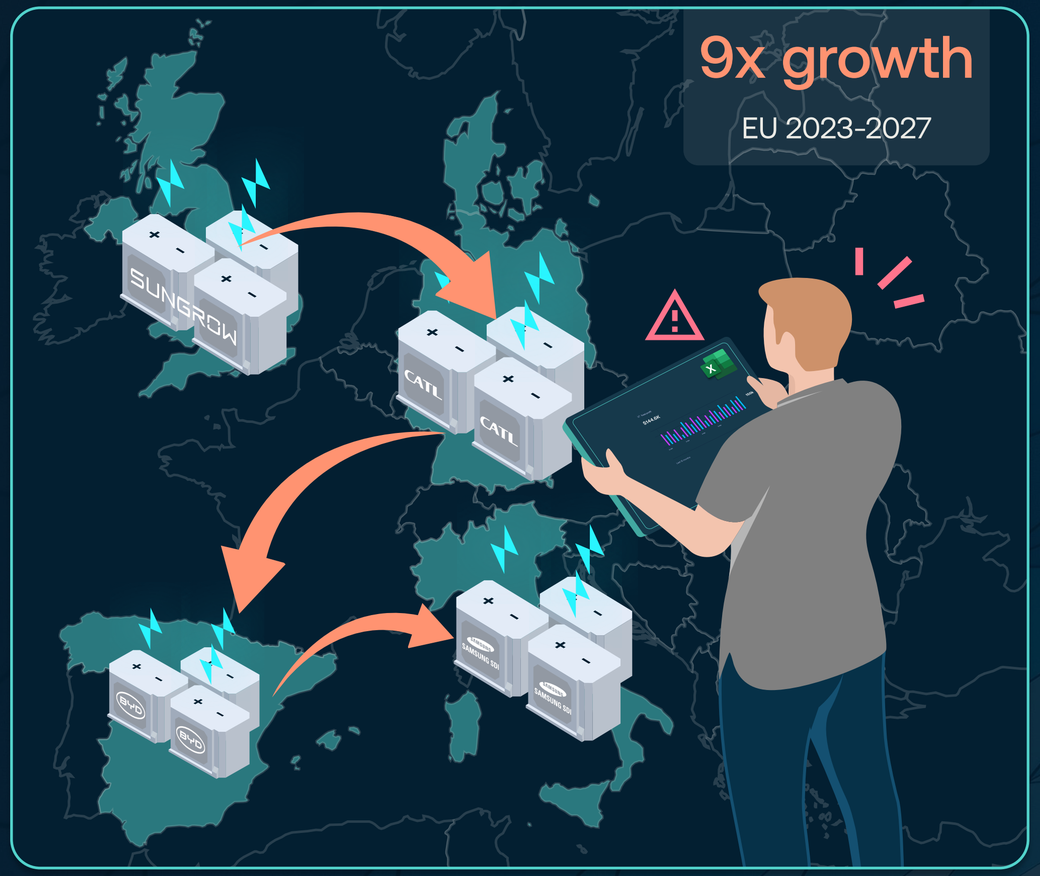
Communication lag

Slow handoffs delay incident resolution and optimization cycles

Automation & integration

Streamlined workflows accelerate decisions and recover missed value.





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Onboarding Delays — Slow Start, Lost Revenue

Late or incomplete data integration costs ~5.8% (€870k/yr @ 100 MW).

Commissioning-first

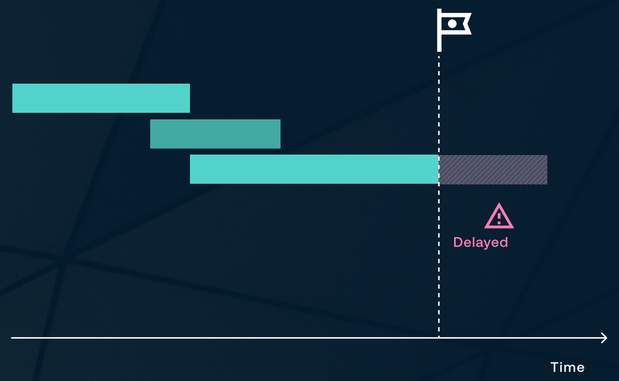
Data onboarding is part of commissioning, not an afterthought.

Warranty-ready architecture

Early alignment on data architecture ensures OEM warranty compliance and faster go-live.

Lower contractual risk

Accelerates commercial operations readiness.



COD delay impact

For a 100 MW system earning €150 k/MW-yr (≈ €15 m/yr): a 3-week delay in commercial operations results in ~5.8% fewer billable hours. That corresponds to roughly €870 k of lost revenue in the commissioning year. Each week of delay ≈ €290 k missed revenue.

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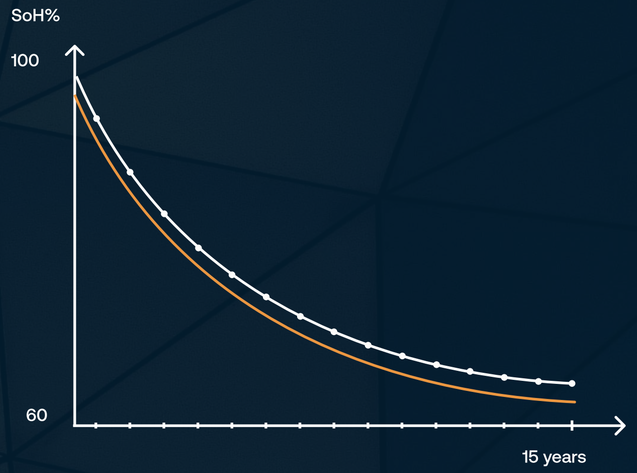
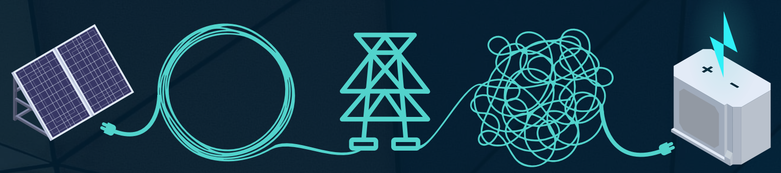


Warranty breach impact

If an OEM reduces the throughput by 150 cycles (~27% of yearly cycles for a 100 MW system), lifetime revenue exposure can still be significant. At €150 k/MW-yr and ~1.5 cycles/day (~548 cycles/yr), that's about €4.1 m of revenue risk.

Penalty for underperformance ≈ €4.1 m lifetime impact (100 MW).



BESS data is not as standardized as in PV industry

- Billions of data points must be logged on a monthly basis
- Not only measurements but as well status of alarms and errors

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Underused AI & Advanced Battery Analytics — Missed Insight, Missed Revenue

Underuse of AI and analytics leads to 6% (€900k/yr @ 100 MW) recoverable revenue.

Data depth

Limited data depth from SCADA/EMS systems prevents effective predictive maintenance and optimization.

AI capabilities

Enables pattern detection, early fault prediction, and higher trading volumes with accurate SoC estimations.

Asset performance analytics

Detect weak inverter strings/modules and rack-level SoC imbalances that cap site output; surface degradations early to protect availability and revenue.

How granular is BESS data today?

Advanced analytics need sub-5-second data. Today, roughly two-thirds of BESS log at ≥10–60+ s, limiting accuracy or requiring EMS retrofits to expose high-fidelity signals.

Only ~1/3 of fleets log at ≤5 s.

The cost of making data available for advanced analytics — EMS retrofitting (Europe)

- CAPEX: 100 MW / 2 h ≈ €47M (turnkey avg).
- EMS retrofit costs: ≤1% of CAPEX → ≈ €0.47M (one-off); ≤1% of annual revenue → €150k/yr (baseline: €150k/MW-yr × 100 MW = €15.0M/yr).

1 % upfront of CAPEX, 1 % of annual revenue — the EMS retrofit barrier.

Sources: MDPI; Accure; Fractal; Bloomberg NEF

Poll results

We asked 120+ BESS Asset Managers about their biggest challenge

The goal was to understand where teams feel the most operational pressure as portfolios grow.

Respondents chose from the following six challenges:

1. **Imbalance costs**
   Setpoint ≠ metered grid output
2. **Stakeholder & data friction**
   Access gaps, slow cross-team alignment
3. **Scheduled maintenance inefficiency**
   Poorly timed downtime
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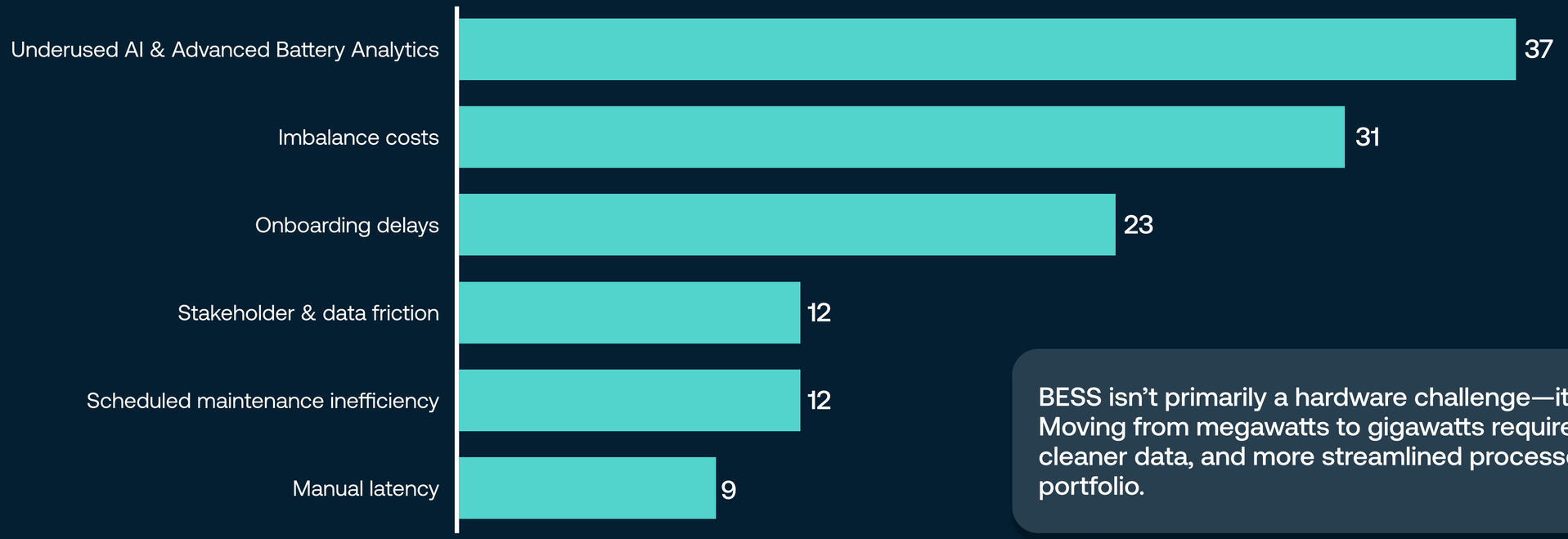
Poll results

Key insights from the poll and what they tell us about scaling

- Almost 55% of the challenges selected relate to underused AI & advanced battery analytics and imbalance costs.
- About 20% of operators experience delays go-live of new projects.

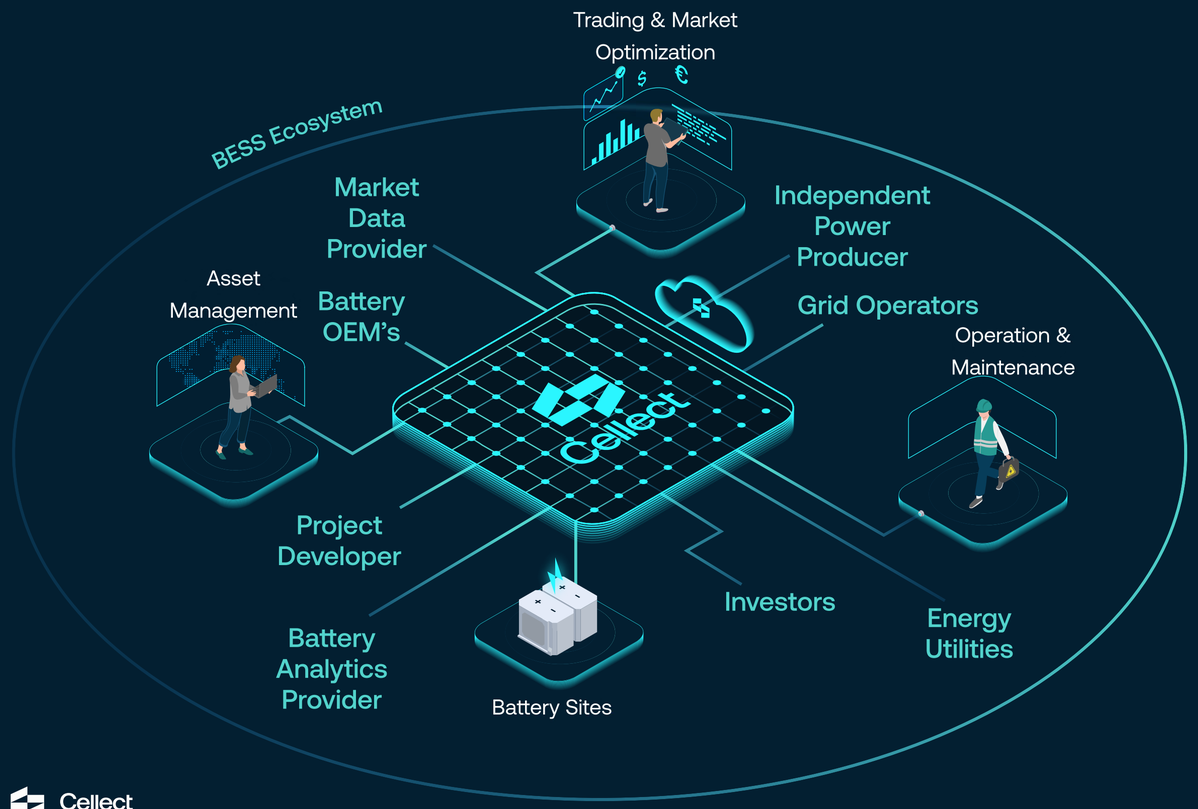


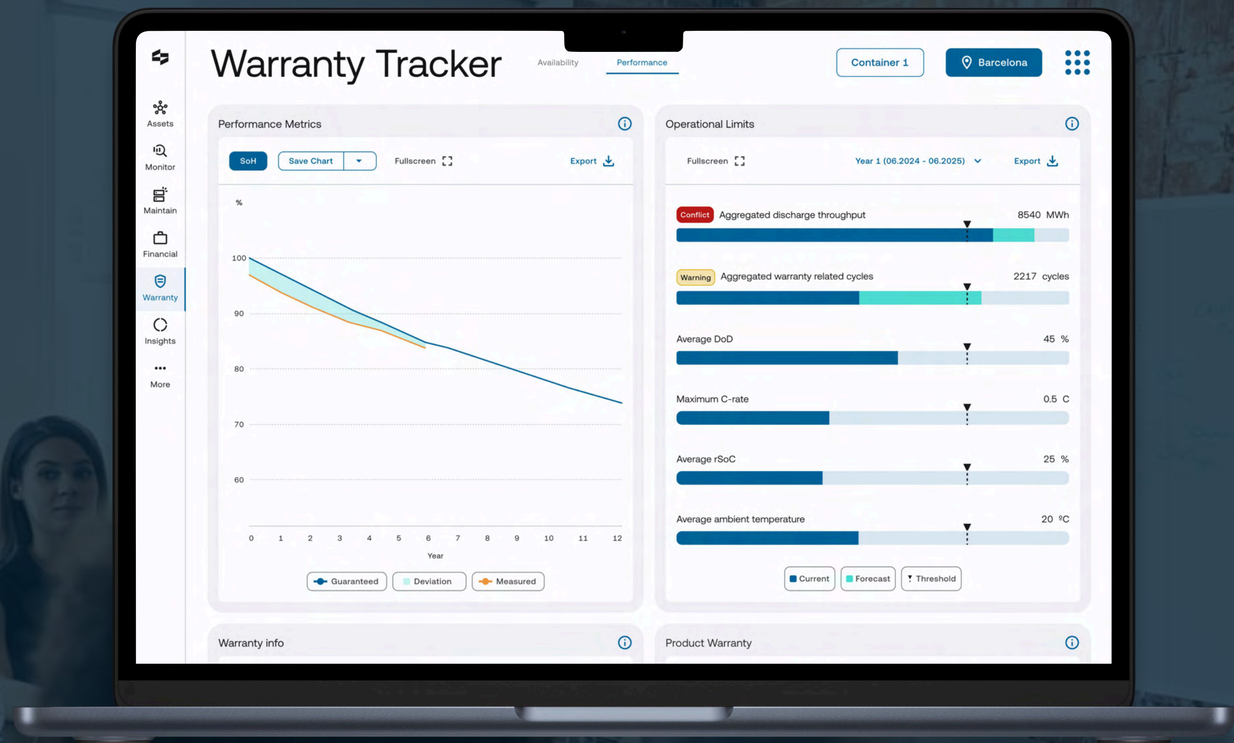
BESS isn’t primarily a hardware challenge—it's an operational one. Moving from megawatts to gigawatts requires better coordination, cleaner data, and more streamlined processes across the entire portfolio.

Cellect

The platform for reliable, profitable utility-scale storage

Purpose-built tools for utility-scale storage operators. Simplify asset management, align teams, and unlock more reliable, profitable operations.





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ENERGY STORAGE AWARDS Highly Commended Newcomer/Start-up of the Year 2023

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ISO 27019:2017 - Certified Lead Auditor ISO CERTIFIED

Getting tangible results

↑ 20% more revenue
With smart maintenance, analytics and rapid go-live

↓ 70-85% less work
By streamlining operations

↓ 5-15% less downtime
With advanced analytics and planning tools

Closing the Leak

Stop the Hidden 20% Revenue Leak in BESS Operations

Your BESS project's profitability depends on one invisible factor — data integrity.

Every day before COD, misaligned telemetry and fragmented data can silently drain up to 20% of expected revenue.

Built from Cellect's field experience across Europe, this whitepaper gives you a clear, actionable roadmap to:

- Establish a warranty-grade data foundation before COD
- Eliminate integration risks between SCADA, EMS, and commercial systems
- Standardize data exchange across OEMs and analytics partners
- Unlock real-world lessons from successful European BESS projects

Want to learn more?
Download the full whitepaper!

Cellect

Curious to discover more about Cellect?

Be Part of the Future of Energy Storage

We invite you to join the Cellect Energy story and help transform the global energy landscape together.

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Cellect in short

2021 founded	**+25** employees	**Barcelona** headquarter
B2B SaaS products	**BESS** focus	**Utility-scale** market
+2 years in commercial operation with proven results	**2.8 GWh** in Operation and Onboarding until end of 2026	**41 GWh** of long-term Pipeline with existing customers

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