



ENERGY STORAGE SUMMIT GERMANY 2025

Challenges in Managing Utility- Scale Energy Storage



Presented by

Leon Gosh

Founder and Managing Director of Collect 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.



The Challenge of Big Data

Managing Data in Large-Scale Battery Operations

Based on insights gathered from interviews with over 50 BESS asset managers conducted in 2024 and 2025.

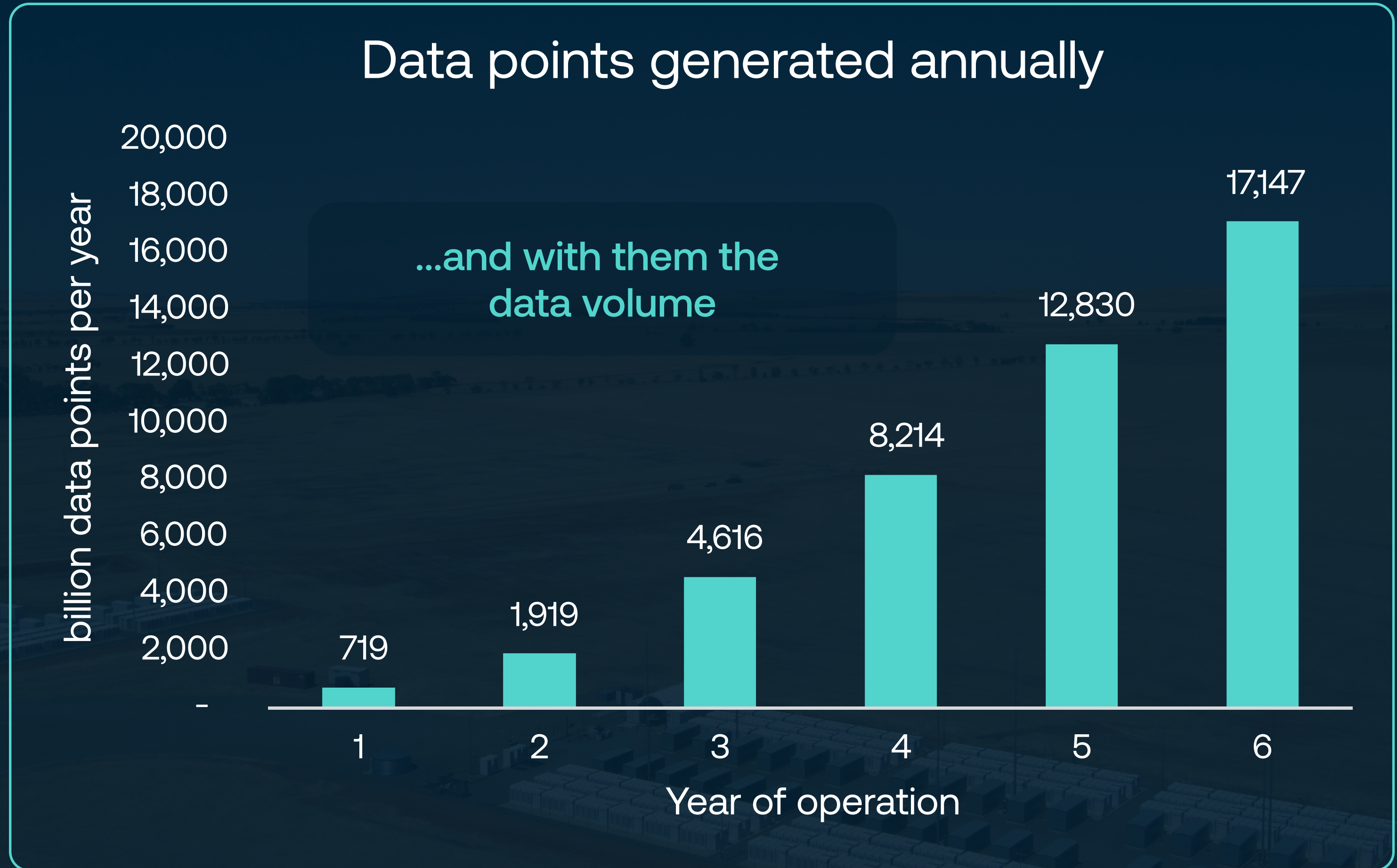


The Challenge of Big Data

Managing Data in Large-Scale Battery Operations

A portfolio that expands to 50 sites and 3 GWh of battery capacity over six years generates an astonishing 17 trillion data points annually—equivalent to 47 billion data points every single day.

How do you tackle data challenges?



*Based on one-second data logging

Challenge Overview

Beyond Data Handling: Exploring the Complex Challenges in BESS Management



How can I efficiently store and securely manage the billions of data points generated each month?



Which data points need to be monitored to ensure compliance with BESS performance warranties?



How can stakeholder requirements be aligned to ensure smooth operations without disruptions?



How to establish a control infrastructure for optimizing BESS operations across multiple markets?



About us

2021
founded

+25
employees

Barcelona
headquarter

B2B SaaS
products

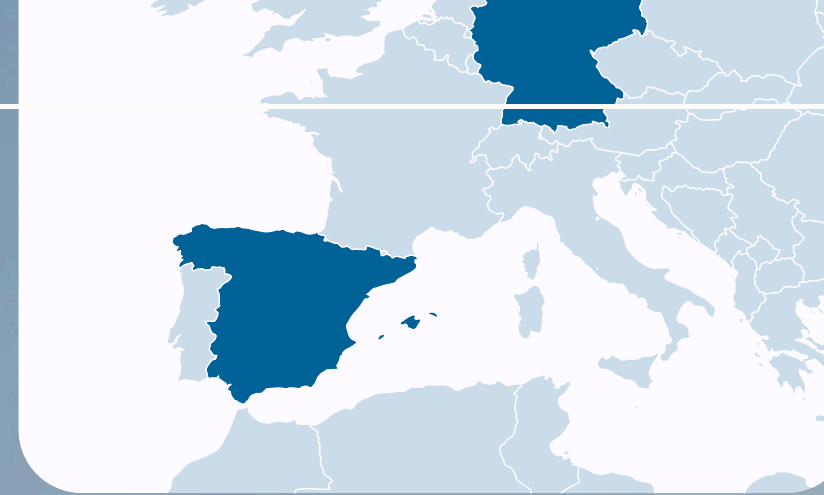
BESS
focus

Utility-scale
market

+650 days
in commercial operation
with proven results

400 MWh
in Operation and
Onboarding

20 GWh
of long-term Pipeline

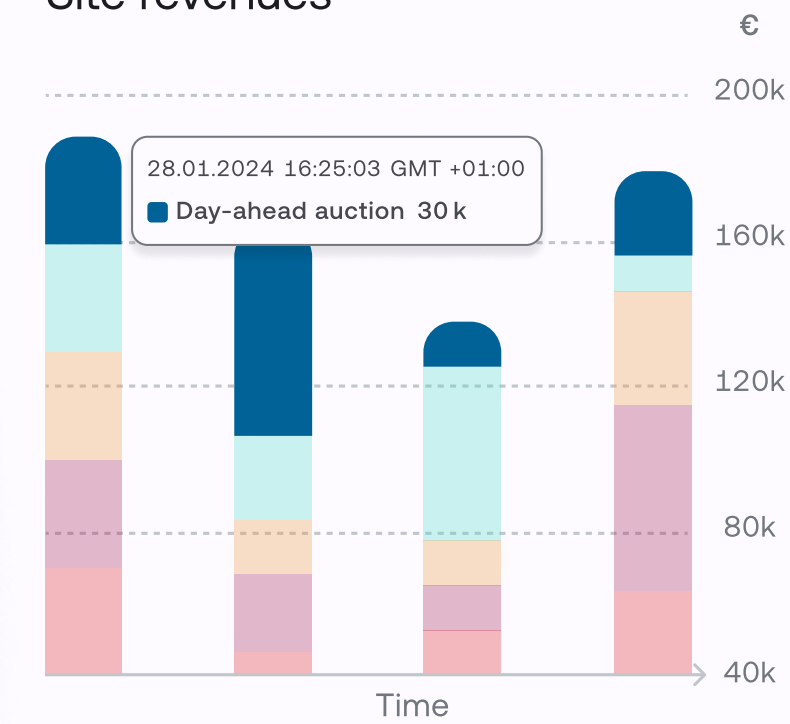


State of Charge

23.7% avg
50.9 % max



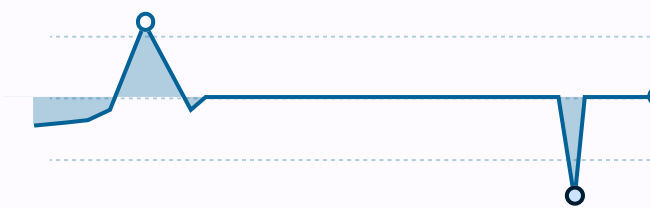
Site revenues



Real-time monitoring

2.43 MW

Max. discharge -8.00 MW
Max. charge 8.00 MW



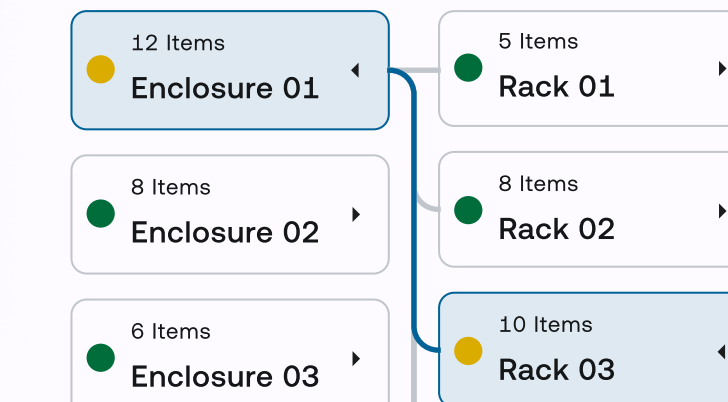
Expiration conditions

Full Equivalent Cycles

Elapsed time



System overview



Confidential

Barcelona

29°



10:00



28°

11:00



24°

12:00



26°

Systems

- Battery power
- Battery SoC
- Power at PoC
- Battery Unit 01 Power AC
- Battery Unit 01 SoC

[About us](#)

Our Vision

Renewable Energy Needs Reliable Batteries

Energy storage is the key to a sustainable energy future. We aim to lead in reducing global warming and transitioning to 100% renewable energy, ensuring a safe, healthy planet for future generations.

About us

Deep Expertise at the Core

Our founder and management team bring decades of experience in solar, wind, and especially energy storage.

We work with



+10 years

Experience in energy storage

+100 projects

Contribution as battery expert



Product portfolio

Tailored Solutions for Managing Utility-Scale Energy Storage



Collect Platform

- ✓ Simplify site management with the Collect Platform, designed for asset managers.
- ✓ Access tools to support both technical and commercial operations seamlessly.
- ✓ Leverage advanced analytics to maximize BESS efficiency and drive optimal performance.



Collect Control

- ✓ Manage energy storage easily with Collect Control and the on-site Collect Box, linking traders to their batteries.
- ✓ Improve trading with real-time battery analytics for precise algorithms and new revenue opportunities.
- ✓ Simplify partner integration with streamlined software, cutting costs, downtime, and boosting revenue.



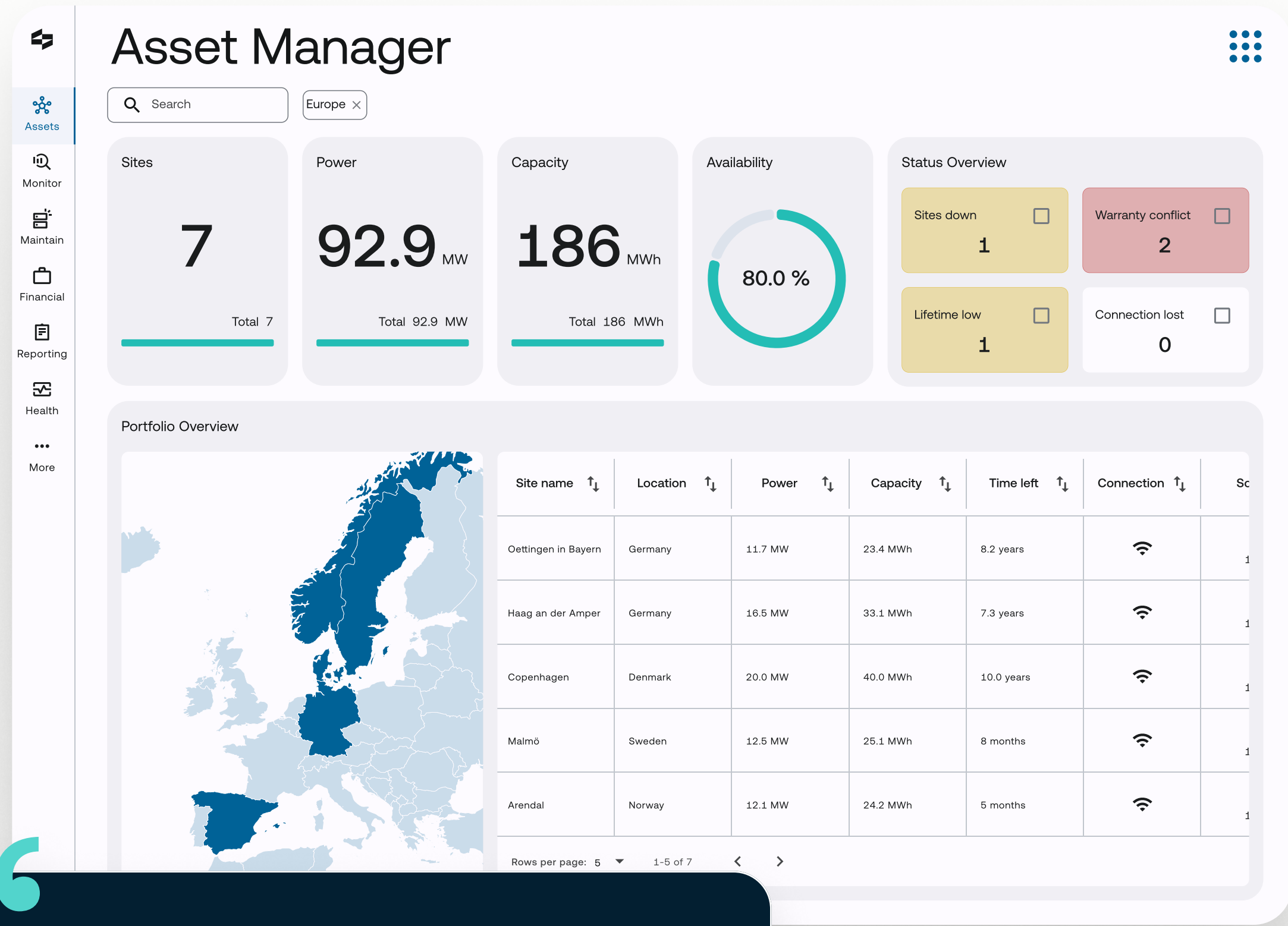
Collect Data Management

- ✓ Securely store operational data using the Collect Cloud infrastructure and API.
- ✓ Stream data safely to the cloud for effortless access and simplified operations.
- ✓ Improve stakeholder management for battery sites with seamless data access.

Asset management challenges

Cellect Platform: Addressing the Asset Management Gap

- ⊗ Lack of a dedicated Asset Management solution for Battery Energy Storage Systems (BESS).
- ⊗ Reliance on repurposed tools or custom dashboards, leading to unnecessary complexity and increased workload.
- ⊗ Reduced ability to focus on optimizing and effectively managing battery portfolios.
- ✓ The Cellect Platform is designed to fill this gap, providing a purpose-built solution tailored specifically to the needs of BESS asset management.



Partnering with a software supplier who demonstrates a profound understanding of BESS has been critical to our success. Cellect's deep expertise ensures that the tools we use are tailored to address the complex challenges of energy storage, offering the flexibility and customization needed to align seamlessly with our operational goals.

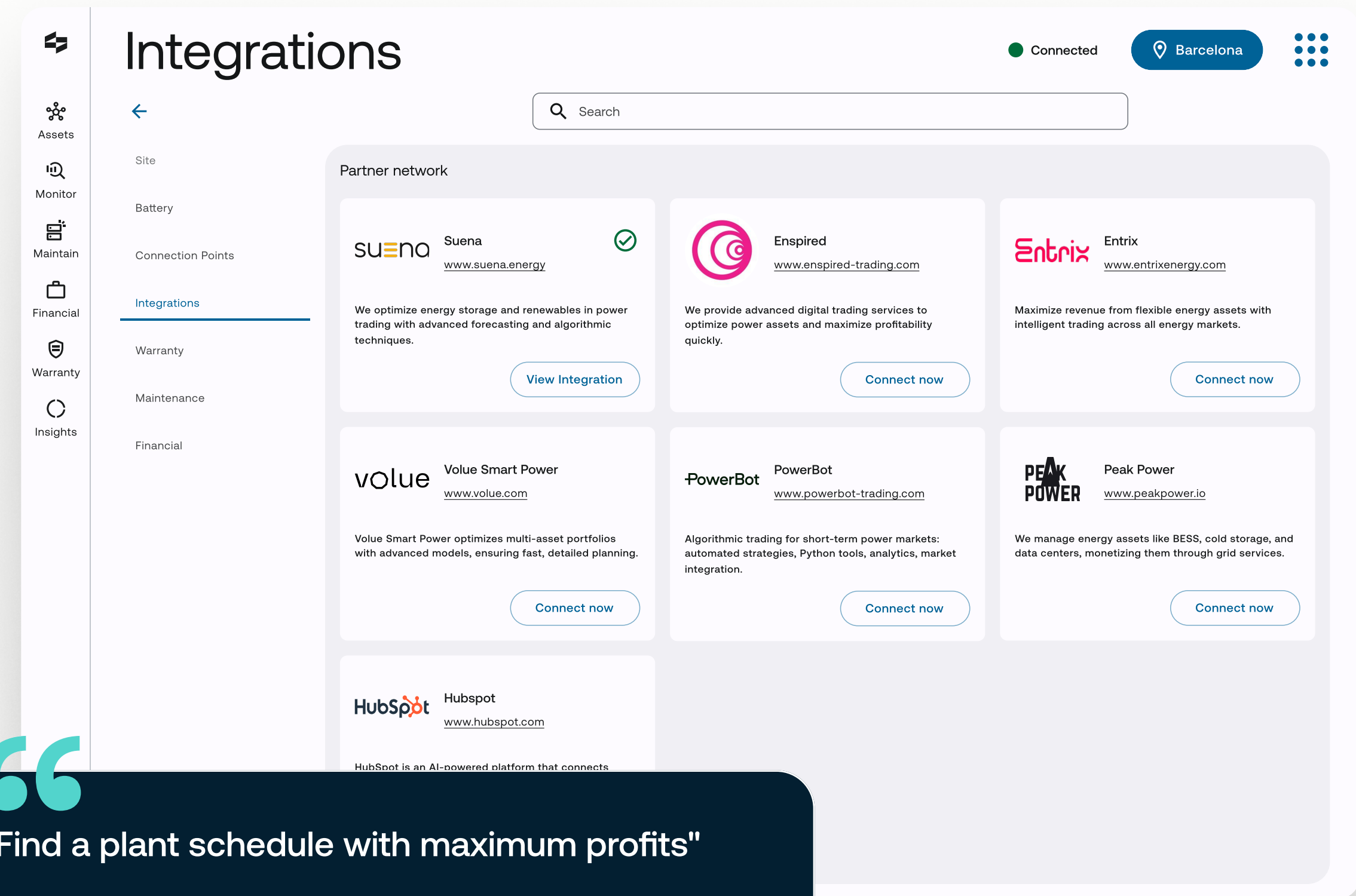


Victoria Zeisberger
Energy Trader, Elli - a brand of the Volkswagen Group

Complex control challenges


Collect Control: How can you simplify complex BESS operations?

- ⊗ Managing the complexity of controlling BESS compared to solar or wind assets.
- ⊗ Executing multi-market applications within BESS due to the need for robust IT infrastructure and integration across multiple interfaces.
- ⊗ Operational challenges such as reduced revenue potential and increased downtime.
- ✓ Collect Control streamlines these processes, making BESS operations smoother, more efficient, and reliable.



“
"Find a plant schedule with maximum profits"
 We are able to have operating conditions reflected in the ongoing optimization and trading process more accurately. It gives a high situation awareness and guides the way to find a plant schedule with maximum profits. I cannot emphasize enough how important this is for rendering flexible marketing services these days.

 **Serge Runge**
 Product Owner, Volue

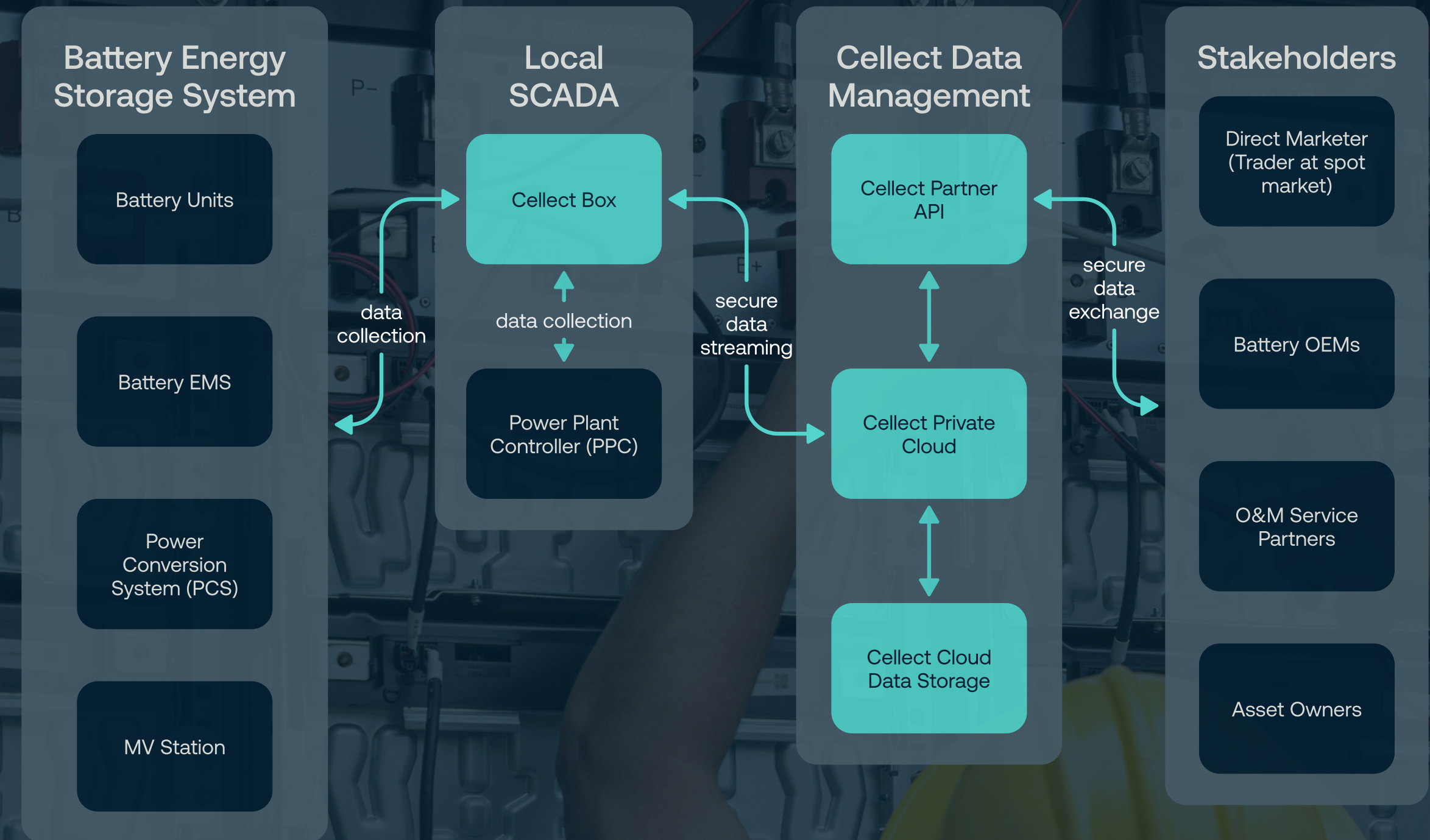
 **Benefits from Collect’s Partner Network**
 The Collect API connects you to compatible partners, simplifying integration, cutting costs, and speeding up onboarding for new battery sites. It streamlines workflows for faster, more cost-effective energy storage management.

Big data challenges

Collect Data Management: Tackling the Data Overload

- ⊗ Handling, storing, and securely managing billions of data points generated every month.
- ⊗ Ensuring secure data sharing among multiple stakeholders involved in BESS operations.
- ⊗ Mitigating IT security risks associated with relying on extensive VPN access to sites, particularly for critical infrastructure.

✓ **Collect Data Management provides a secure, cloud-based solution to handle large volumes of data while facilitating safe and efficient collaboration among all stakeholders.**



"Working with Collect enabled us to build scalable and seamless data integration across our BESS portfolio"

Developing clear use cases and ensuring software connectivity with all site components and stakeholders have been invaluable in making sure we select an asset management platform that is scalable with our future BESS portfolio.



Leandra Boes
Director Asset Management, Green Flexibility

Example

A 50MWh BESS generates approximately 25 billion data points per month with 50GB volume.

Stakeholder challenges

Diverse Stakeholders

Storage projects are typically managed by an operations and maintenance department alongside a direct marketer, similar to the solar and wind sectors. However, the storage market introduces additional stakeholders, including multi-market optimizers, and battery analytics firms, all of whom need to be integrated with the sites.

Alignment of Stakeholder Requirements

Managing all the different requirements that come from the various stakeholders and ensuring they are clearly defined before entering operational phases.

Manage interfaces for data, control, and communication

Coordinate Stakeholder Requirements within the Onboarding

How to Resolve Conflicts When Stakeholders Shift Responsibility



Trading Desk



Operation & Maintenance



Multi-Market Optimizer



Battery Analytics

Onboarding challenges

Complex Asset Onboardings

Energy storage projects often lack the standardization seen in more established markets. Successfully integrating storage sites requires a deep understanding of the technology, as well as the crucial data points relevant to the various stakeholders involved in the operation.

Cellect streamlines the onboarding of your new BESS sites, ensuring they are operational with minimal input from your asset management team.



Navigating established and standardized systems

Navigating non-standardized SCADA and EMS systems

Unclear Requirements for Data Availability

A common challenge for project developers and EPCs is the lack of clear data availability requirements across components before a battery asset operates. This often leads to change requests to the SCADA integrator during operations, causing downtime, disruptions, and revenue losses for stakeholders.

The Absence of Standardization Makes Onboarding More Challenging

Identifying Key Operational Data Requires Specialized Expertise

Managing More Stakeholder Interfaces Increases Complexity

Example

Onboarding a new BESS site to your portfolio, specifically establishing data connectivity and clarifying interfaces with stakeholders, can take over **300 man-hours** from your asset management team.

Warranty challenges

Complex Warranties

Battery systems often feature intricate warranty terms, particularly regarding their lifespan and operating conditions. Asset Managers must ensure transparency and be aware of any potential risks that significantly differ from those associated with solar and wind assets.

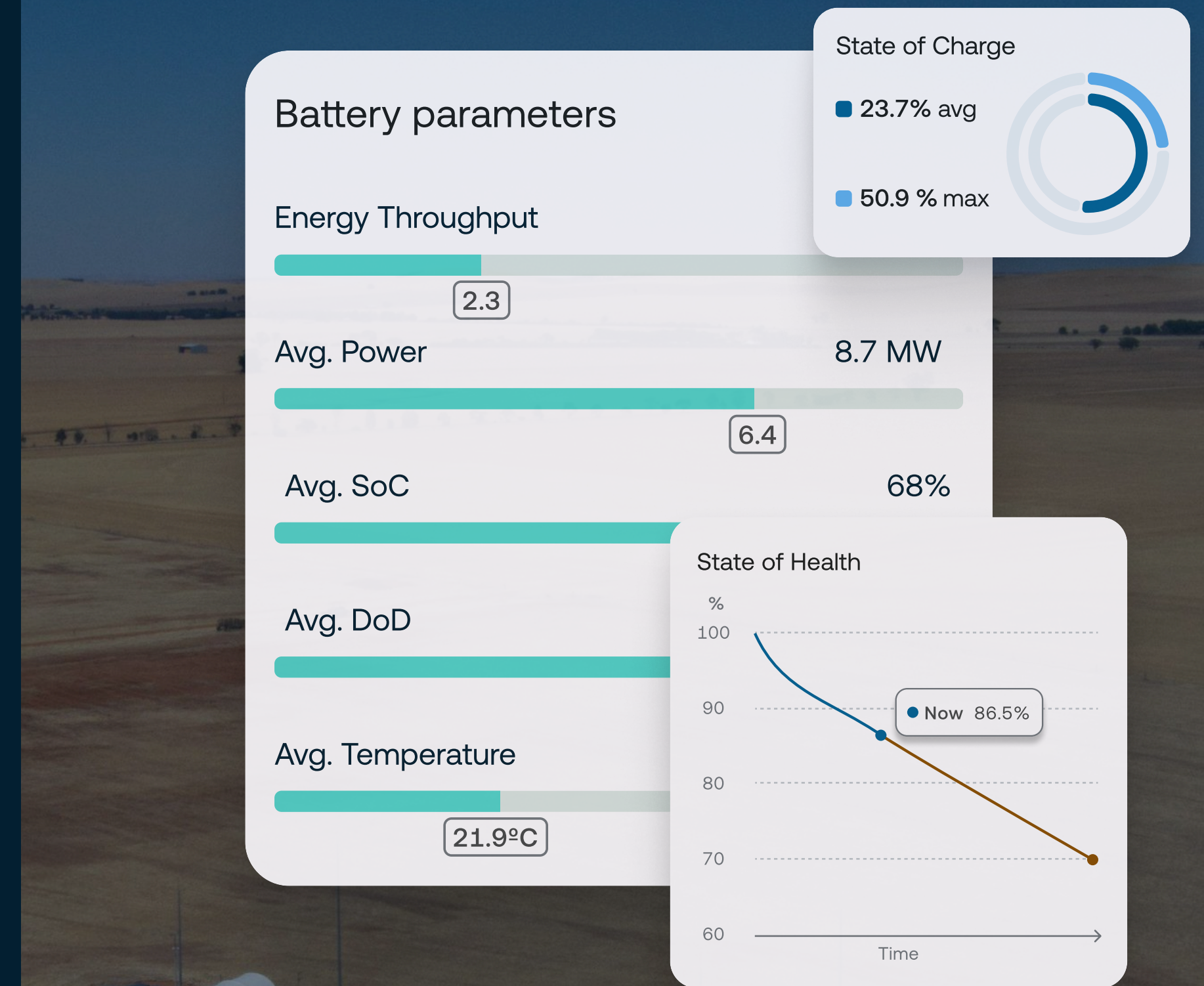
Understanding Battery Performance Warranties

The first challenge for operators is understanding how performance warranties impact operations. These warranties often require specific conditions, usage patterns, and detailed data logging to ensure compliance. Operators should also be aware of penalties for breaches, which can have significant financial consequences.

Monitoring Operations to Ensure Compliance

How to Identify Data Logging Requirements and Build a Reliable Storage Solution

Maximizing Your Commercial Operations While Staying Fully Compliant



Why Collect is Trusted

+650 days

in commercial operation
with proven results

400 MWh

in Operation and Onboarding

10 GWh

of long-term Pipeline

We work with



Certifications and compliances



Content on demand

Available Whitepapers



Performance Warranties for BESS

Download 



Choosing BESS Asset Management Software:
The Essential Do's and Don'ts

Download 

Curious to discover more about Collect?

Be Part of the Future of Energy Storage

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



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