26th July | WEBINAR

How industry leaders optimise the performance of their renewable and energy storage assets

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Energy Storage NEWS

FLUENCE
A Siemens and AES Company

PV TECH

500MW

of operating projects

About Us

BTE Renewables is one of Africa's leading renewable energy companies, with a portfolio of nearly 500 MW of wind and solar PV projects in South Africa and Kenya. We aim to build long term local partnerships whilst sharing global expertise and best practice.

Driven by steadfast sustainability principles, our highly professional team develops, constructs and operates utility-scale, renewable energy projects which unlock the true potential of people, communities and economies.

About Us

Common challenges in asset performance management

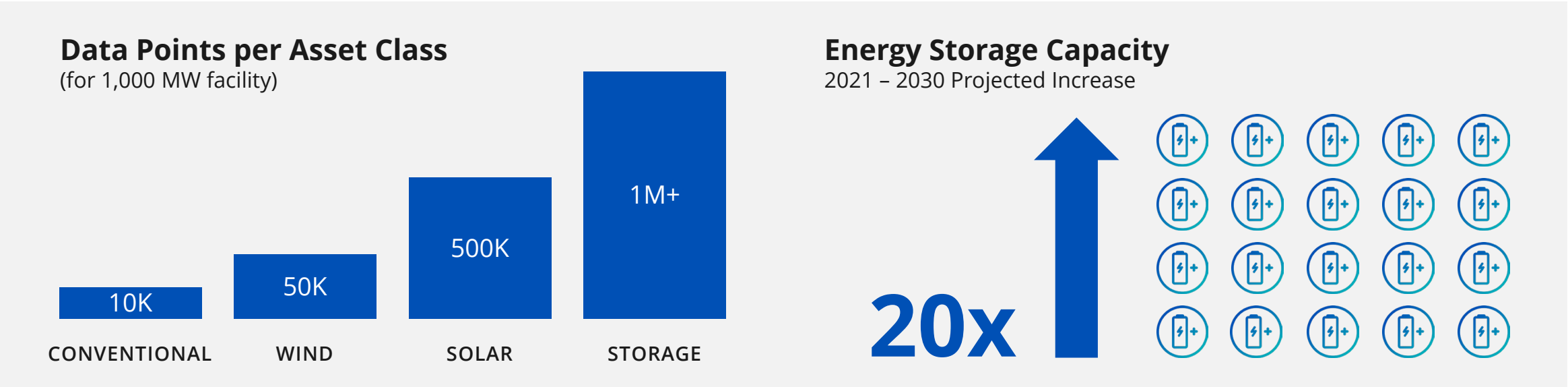**DATA MANAGEMENT**

PORTFOLIO VISIBILITY

ISSUE IDENTIFICATION

MAINTENANCE PLANNING

TECHNICAL & FINANCIAL REPORTING

Large-scale assets means large-scale data collection

Data Points per Asset Class
(for 1,000 MW facility)

- 10K — CONVENTIONAL
- 50K — WIND
- 500K — SOLAR
- 1M+ — STORAGE

Energy Storage Capacity
2021 – 2030 Projected Increase

20x

Traditional Model

Manual data collection, preparation and harmonisation across assets

Data Collection	Analysis	Sharing	Action
40%	**30%**	**20%**	**10%**

Improving time to value with data automation

| 40% | 30% | 20% | 10% |

Data Collection, Analysis, and Sharing   **Action**

| 15% | 15% | 30% | 40% |
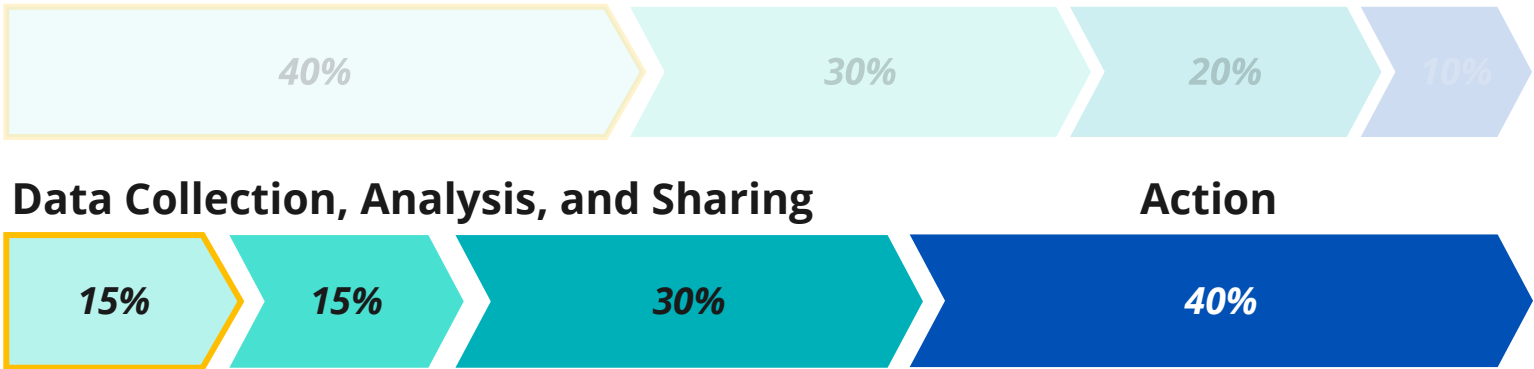
Getting from 40% to 15%

- **Data Collection** – Automated, proven data collection process of various asset types and OEMs
- **Data Quality** – Cleansing/filtering to maintain high level of data quality and focus on essential metrics
- **Data Harmonisation** – Standardised and scalable data model across assets
- **Data Storage** – Secure and redundant storage of the whole operational history, from the COD
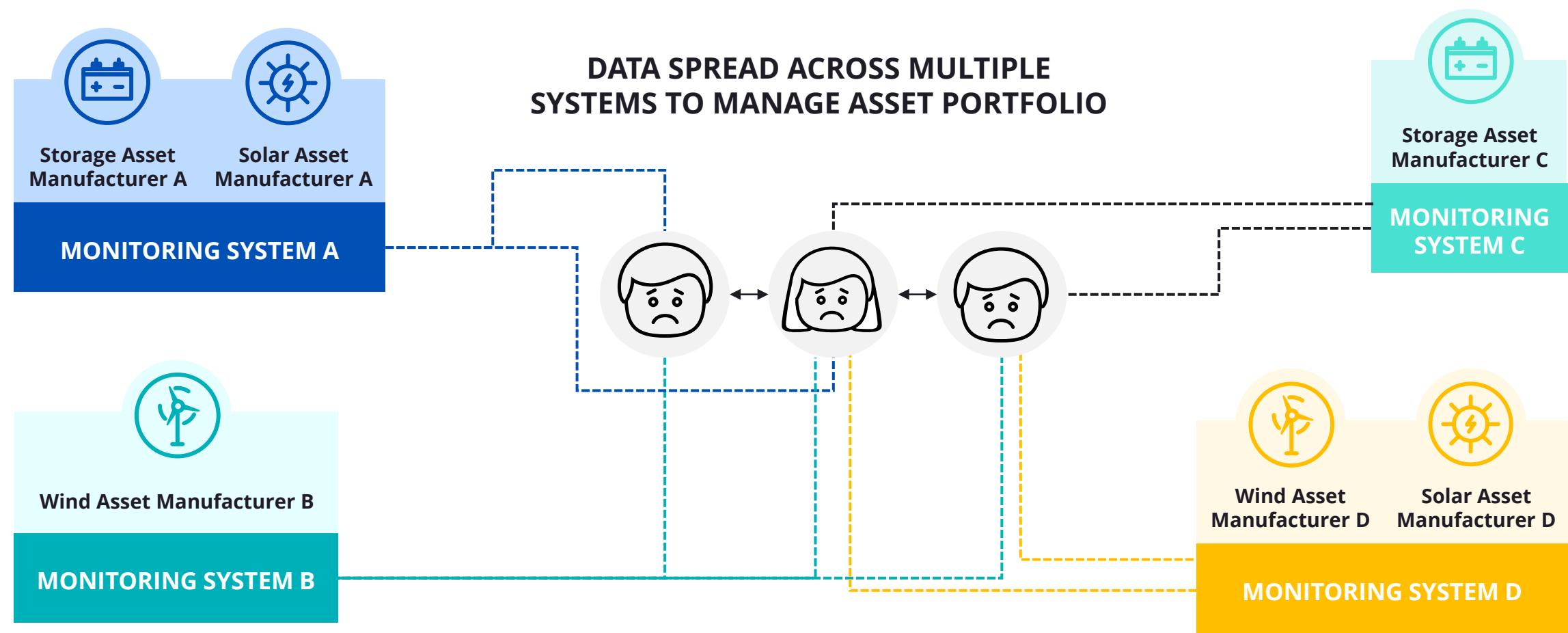- **Long-Term Support** – Ongoing database management, cybersecurity, and maintenance

" What we've achieved with Nispera so far gives us confidence that we can continue adding more assets to the portfolio without requiring additional data analytics resources... it saves us the cost of hiring at least one or two people that we would otherwise need in-house to manage this volume of data."

Asset Manager
Renewable Investment Fund

Disparate assets and technologies limit scalability

DATA SPREAD ACROSS MULTIPLE SYSTEMS TO MANAGE ASSET PORTFOLIO

Storage Asset Manufacturer A
Solar Asset Manufacturer A
MONITORING SYSTEM A

Storage Asset Manufacturer C
MONITORING SYSTEM C

Wind Asset Manufacturer B
MONITORING SYSTEM B

Wind Asset Manufacturer D
Solar Asset Manufacturer D
MONITORING SYSTEM D

Achieving a comprehensive view of all assets

Get all performance data out of one-off systems and **into one place**

Accessible to different users at different levels of granularity

Highly configurable dashboards and **custom analyses**

View real-time and **historical** asset data

Comply with industry leading cybersecurity practices

"Nispera meets and exceeds our needs in terms of efficient monitoring, validation of data and variety of analysis for our whole renewable portfolio that ensures an executive overview as well as a deep dive into single asset troubleshooting"

Managing Director,
Global Renewable Investment Fund

Difficulty understanding and prioritising issues and alerts

How do I know if one of my plants is not performing well?

How do I estimate the energy loss?

How do I compare across my fleet?

Addressing common asset operational issues with AI

Identifying PV Tracker Faults

Detect tracker faults even with a lack of or low-quality data from the tracking system
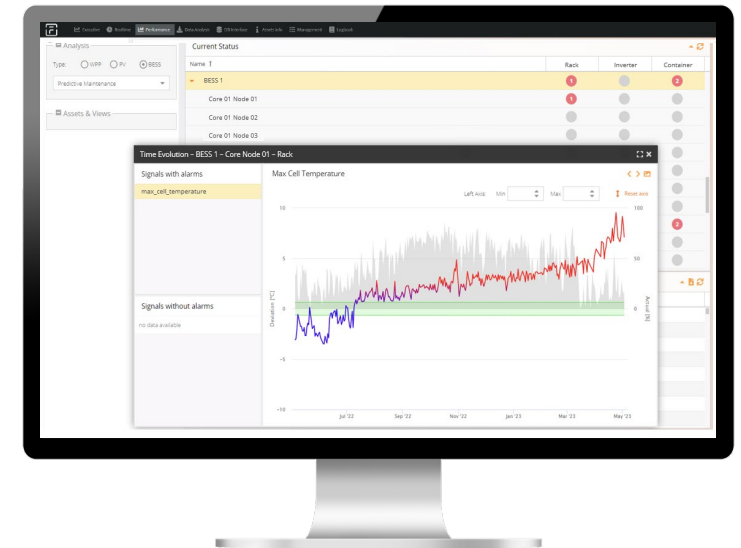

Tracking Wind Turbine Performance

Continuously check power curves under site specific conditions to detect underperformance of wind turbines
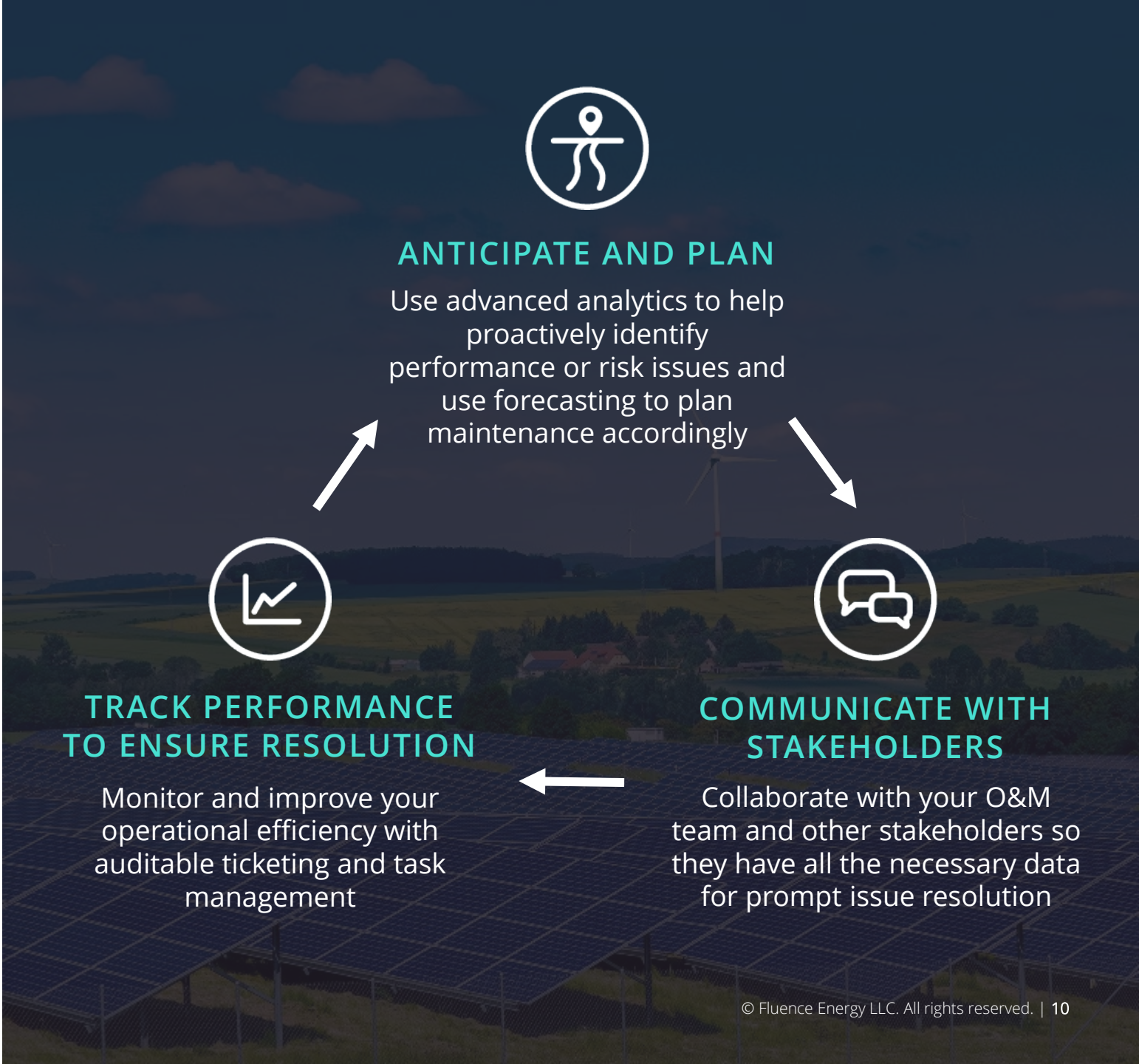

Detecting Battery Temperature Anomalies

Detect and anticipate temperature deviations from reference behavior of different asset components, such as bearings of a wind turbine or racks of a storage plant

From Reactive to Proactive

Working with leading renewable portfolios over the years, we've found these common best practices to maintenance planning and implementation:

ANTICIPATE AND PLAN

Use advanced analytics to help proactively identify performance or risk issues and use forecasting to plan maintenance accordingly

TRACK PERFORMANCE TO ENSURE RESOLUTION

Monitor and improve your operational efficiency with auditable ticketing and task management

COMMUNICATE WITH STAKEHOLDERS

Collaborate with your O&M team and other stakeholders so they have all the necessary data for prompt issue resolution

Ad-hoc reporting is time-consuming and error-prone

Operators may spend countless hours **collecting and harmonising data from various sources** to generate diverse technical and financial reports

" With every new project that was connected, it became almost impossible for me to collect all the SCADA data, analyse them, pick up on inaccuracies, and summarise everything in regular reports."

*Asset Manager*
Renewable Investment Fund

Generate reports from a single source of organisational truth

Best practices

- **Flexible reporting** to meet the needs of different stakeholders and time horizons

- **Intuitive reports** that are fast to read and convey key information for quick consumption

- **Consistent, auditable data** creates a system of record for historical information and reports

- **Convert power metrics** (MW and MWh) into commercial metrics for financial stakeholders

Different metrics to focus on based on asset types:
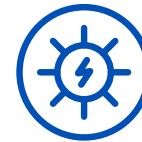
SOLAR
Tracker position; actual production, improvement potential, and irradiance; system efficiency

WIND
Actual production, improvement potential, wind direction, and grid limit; power curves; rose charts
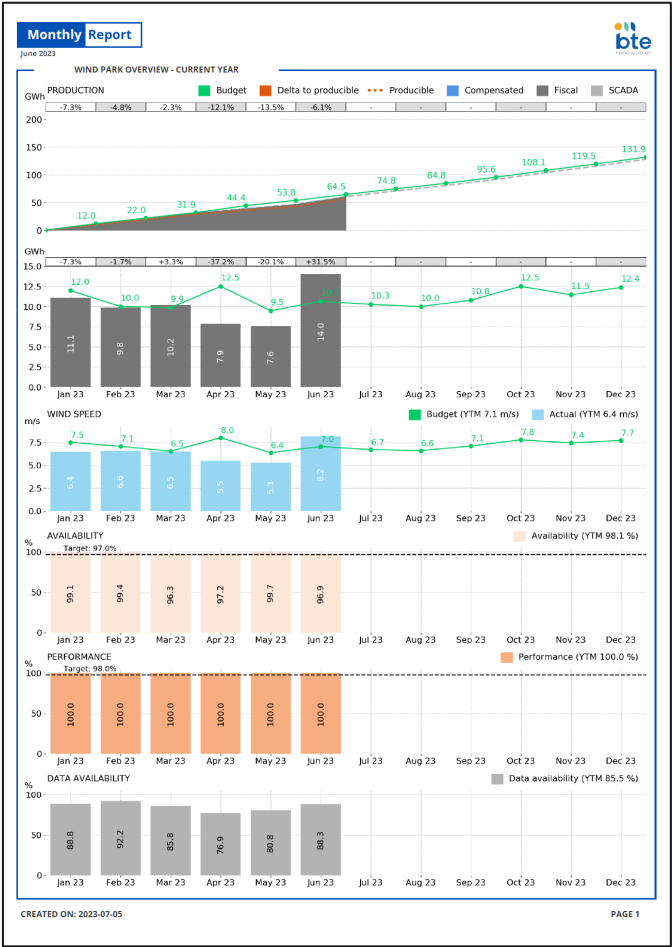
STORAGE
Charging profiles (charged and discharged energy); average SOC; actual vs. contractual availability

BTE reports address different stakeholder needs

EXECUTIVE REPORTS

TECHNICAL REPORTS

Intuitive charts show budgeted vs actual YTD performance at the portfolio level for executive overview
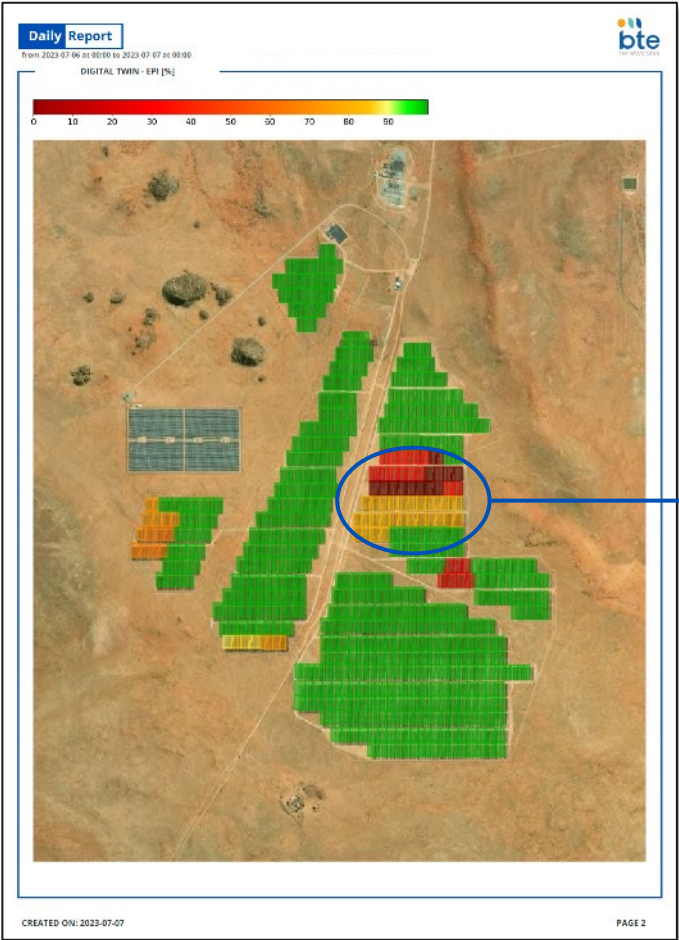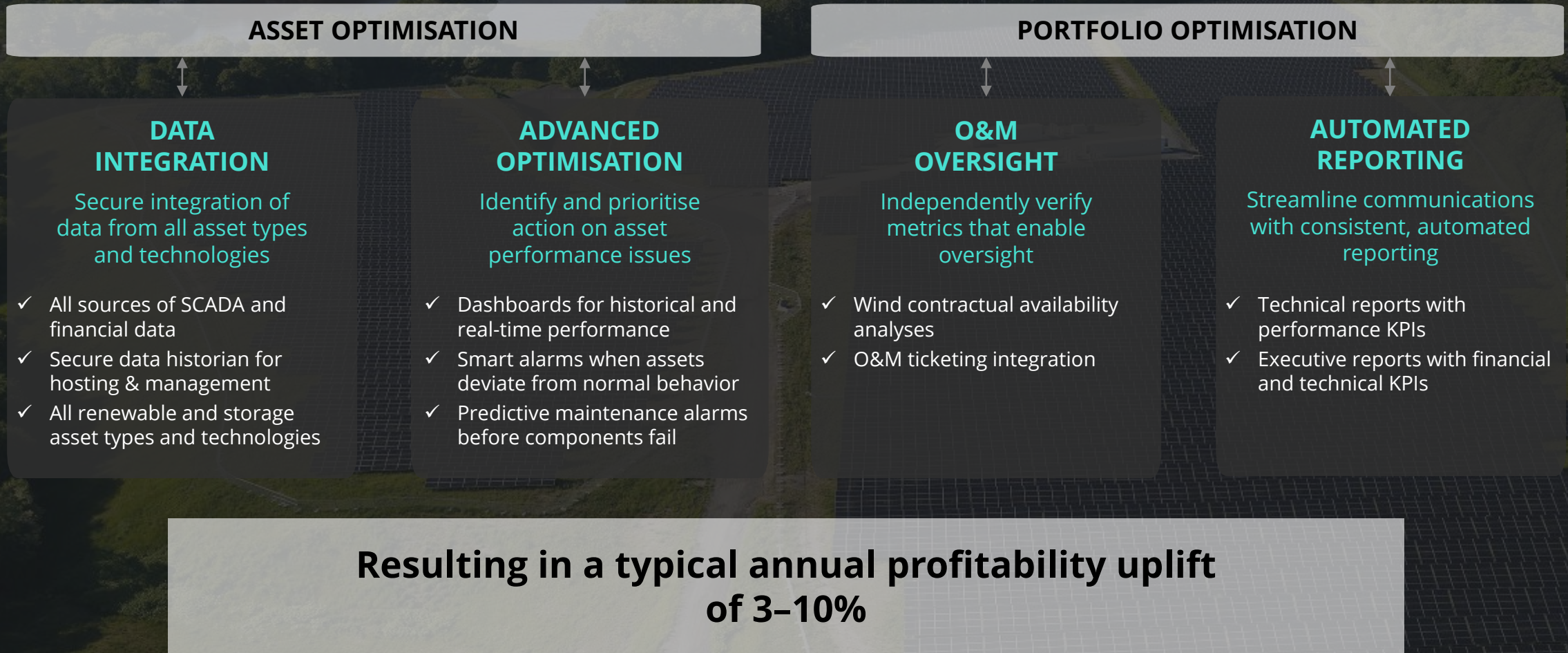
AI-powered digital twin spotlights underperformance, enabling prompt investigation and resolution

Nispera helps asset owners maximise asset value

ASSET OPTIMISATION

DATA INTEGRATION

Secure integration of data from all asset types and technologies

- ✓ All sources of SCADA and financial data
- ✓ Secure data historian for hosting & management
- ✓ All renewable and storage asset types and technologies

ADVANCED OPTIMISATION

Identify and prioritise action on asset performance issues

- ✓ Dashboards for historical and real-time performance
- ✓ Smart alarms when assets deviate from normal behavior
- ✓ Predictive maintenance alarms before components fail

PORTFOLIO OPTIMISATION

O&M OVERSIGHT

Independently verify metrics that enable oversight

- ✓ Wind contractual availability analyses
- ✓ O&M ticketing integration

AUTOMATED REPORTING

Streamline communications with consistent, automated reporting

- ✓ Technical reports with performance KPIs
- ✓ Executive reports with financial and technical KPIs

Resulting in a typical annual profitability uplift of 3–10%

Connect with us to learn more. Questions?

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