

# Reduce Risks & Improve Profitability of BESS Projects

With Energy Storage Analytics

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## Leading & most trusted battery analytics provider

30+

120+

team incl. battery software engineers & data scientists

**\$90m** 

funding for long-term security

offices: Munich HQ (DE), Chicago (US), Berlin (DE) onsite battery research center

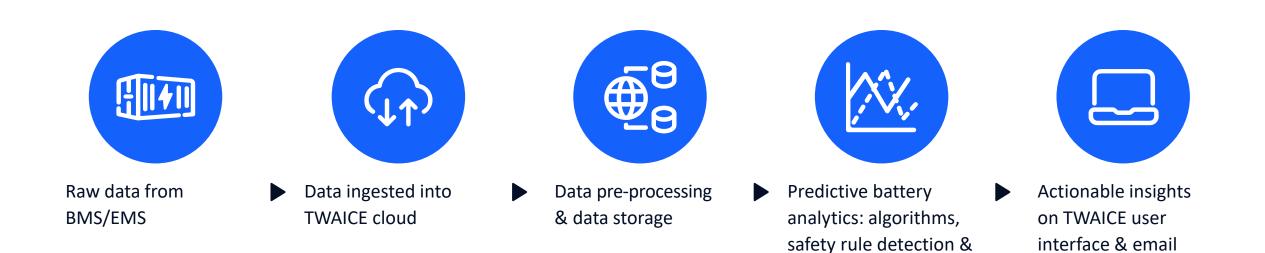


70+

BESS connected, adding up to a total of 5 GWh

Patents (granted & in application)

## Advanced analytics turns BMS data into actionable insights



more

alerts

We help you solve business critical BESS challenges with advanced analytics

### Safety

### **Availability & Performance**

#### Insurance



"We have found issues in every storage we have analyzed – in commissioning & operation"

- Co-CEO TWAICE

"Unplanned downtime led to an average availability across our fleet of only 84% last year"

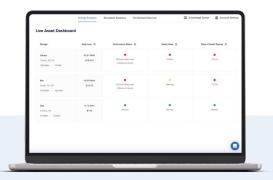
- US ASSET OWNER



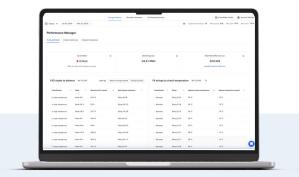
"Premium reductions of up to 30% possible due to battery analytics"

- US BESS BROKER

## **Experience our predictive analytics platform: Energy Storage Analytics**



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#### Efficiently manage your BESS portfolio

#### ✓ Optimize BESS health & lifetime

- ✓ Dashboards & standardized KPIs
- ✓ Automated Reporting

## Avoid fire risks & other safety incidents

- Identify safety-relevant trends across your fleet
- ✓ Get alerts & recommendations

## Improve availability & revenue

- Pinpoint components that are harming revenue
- Get recommendations on what to fix (e.g. balancing or replacing modules)

## Automatically track BESS warranties

- Automatically track warranty indicators
- Support decision making and communication during disputes

### **Providing value for CFO, Asset Managers and Field Service engineers**

Storage	Daily Loss	Performance Status	Safety Index	State of Health Spread
Cectus Tucson, AZ, US 300 MWh 75 MW	-92,61 Milth -\$18,245	56 % of nodes with imbalance issues	Critical	9 77.5 %
Elm Austin, TX, US 470 MWh 100 MW	-38.95 Milth -\$7,673	23 % of nodes with imbalance issues	Wiening	9 77.2 %
Dek London, UK 24 MWh 24 MW	-0.72 MWh -\$142	Normal	Normal	Normal
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#### **High-level overview**

- ✓ Asset management dashboard
- ✓ Proactive email alerts
- ✓ Identify immediate risks

#### **Detailed insights**

- ✓ Pinpoint problematic components
- ✓ Concise summaries for quick action
- Predictive analytics to identify risks

#### **Advanced data exploration**

- ✓ Explore data with powerful tool
- ✓ In-depth root cause analysis
- ✓ Work with TWAICE experts

## Increase Revenue – Improve availability by proactively identifying issues

#### Challenge

- SoC Imbalances in the system limiting power availability
- Unclear root causes of imbalances

#### Solution

- ✓ Pinpoint problematic component
- Identify countermeasure (balancing, maintenance)

#### Impact Examples

300 MWh nameplate, 406 MWh installed system

- 6 defective modules
- Daily loss of 18 MWh
- >\$1 M annualized revenue lost and gained back
- Provided documentation for legal claims (cell supplier)

#### **TWAICE Performance Manager**



## Lower Costs - Digital Commissioning to pinpoint weak spots and baseline BESS

#### Challenge

- Majority (of failure incidents happens in the first two years and around half are related to manufacturing and integration (Joint case study with EPRI)
- On-site measurements becoming more expensive & complex due to larger systems

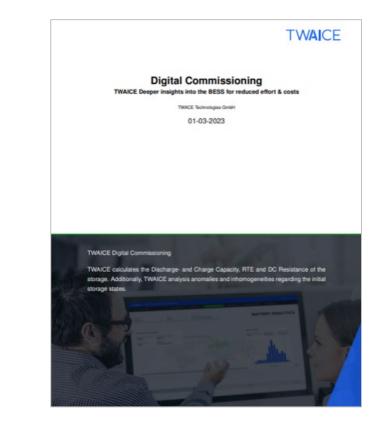
#### Solution

- Pinpointing anomalies in the system to guide onsite teams
- ✓ Baseline the system to ensure performance

#### **Impact Examples**

 VERBUND identified multiple issues with their storage systems ranging from temperature issues to integration defects (welding) (<u>case study</u> | <u>webinar</u>)





## Unlock improved profitability: Increase revenue & save costs

#### **INCREASE REVENUE**

- Higher availability & better performance
- Higher energy utilization (more accurate SoC and lower degradation)

#### LOWER O&M COSTS

- Quicker troubleshooting & root-cause analysis
- ✓ Proactive maintenance
- ✓ Streamlined commissioning

increase revenue +5-10% costs reductions
8-15%

Impact with current customers

## Learn more about how Energy Storage Analytics helps you achieve longterm success:



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