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**26 June 2025**

9:00 am – 10:00 am | CEST, Berlin

5:00 pm – 6:00 pm | AEST, Sydney

pV magazine  
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# Storage case study: Bulgarian C&I project sets new deployment benchmark



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Editor  
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**Jade Martyn**

Sales Director  
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**Jurgen Content**

COO  
Earth



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Technical Manager  
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# Welcome!





Do you have any questions?  

Send them in via the Q&A tab.  We aim to answer as many as we can today!

You can also let us know of any tech problems there.

We are recording this webinar today. 

We'll let you know by email where to find it and the slide deck, so you can re-watch it at your convenience.  



**Power your day,  
the Earth way ||**

 **EARTH**





# About Earth

**European Leader in Renewable Energy**  
Active in 6 countries



**+ 4.300**

Installation per  
year



**+250.000**

Solar panels  
installed in 2024



**+27.000**

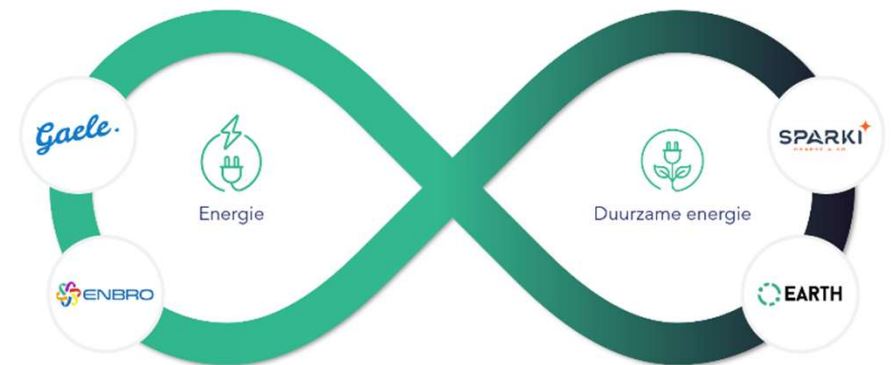
Happy customers



**7**

Offices in Europe

## Energy Loop



# Sigenstack implementations

- Over 6MWh installed and planned in the near future
- 11 Implementations and growing
- 6 use cases as examples of flexible implementation options



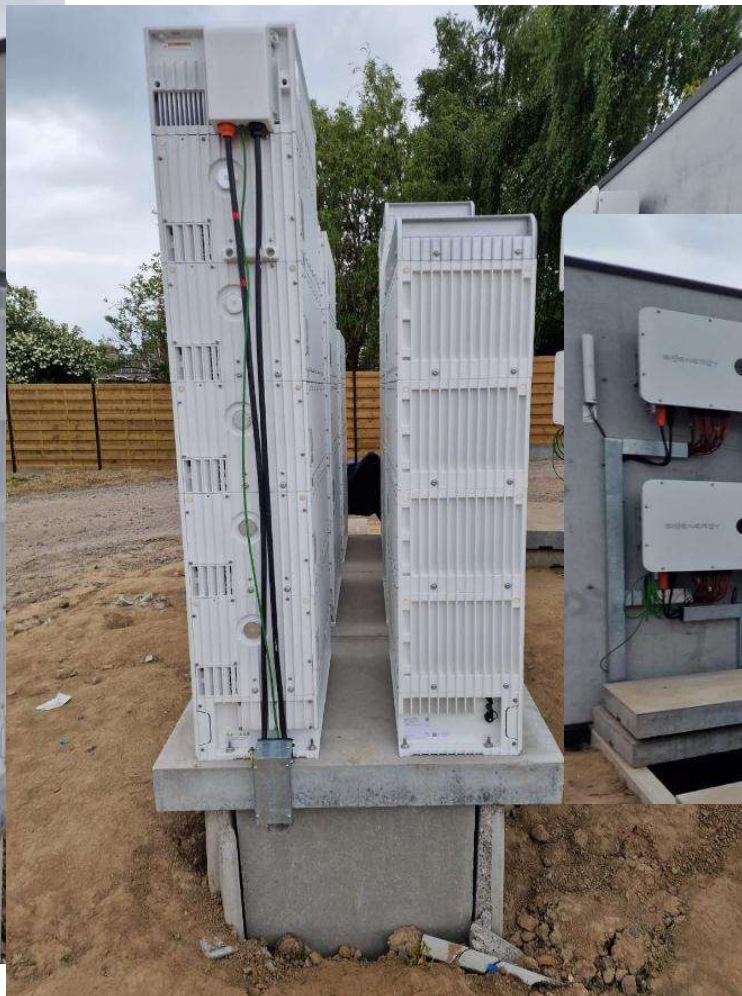






















**INTERTEK**  
**TOTAL QUALITY ASSURANCE**  
**VALUE PROPOSITION**



# GROWTH OVER THE YEARS...



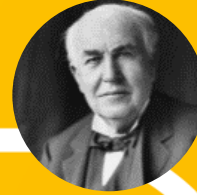
**1885**

Caleb Brett founds his cargo certification business in the UK



**1896**

Thomas Edison sets up the Lamp Testing Bureau in the US (this later becomes the Electrical Testing Laboratories of ETL – a mark that Intertek still applies today)



**1989**

ETL becomes an OSHA-approved Nationally Recognized Testing Laboratory (“NRTL”)

**1925**

SEMKO (the Swedish Electronic Equipment Control Office) is founded

**1994**

ITS acquires SEMKO



**2002**

Intertek lists on the London Stock Exchange



**TODAY**

Working with 40,000+ customers & Operating in 23+ Countries and 61+ labs



# INTERTEK IS UNIQUELY POSITIONED TO DELIVER ATIC SOLUTIONS



## Systemic approach to Quality and Safety



Products



Trade



Resources

44,000+ EMPLOYEES

GLOBAL MARKET  
LEADER IN ASSURANCE

3,000 AUDITORS

100,000+ AUDITS\*

100+ COUNTRIES

GLOBAL MARKET  
LEADER IN TIC

1,000+ LABS & OFFICES

80+ LANGUAGES

\*NOTE: Third party audit only

# INTERTEK ENERGY STORAGE SYSTEMS SERVICES



## Energy Storage System, Battery and Converter Services

- American cETLus certification, on-site labeling and CEC listing
- European Tick-Mark, CE, COC and CB certification
- Australian CCS certification and CEC listing
- Brazilian INMETRO testing and registration
- Indian MNRE/BIS certification
- Chinese CQC/CGC certification
- Compliance testing and certification in other countries and region



## Energy Storage Power Station Services

- Design evaluation and system testing services
- Supervision services
- Factory acceptance and completion acceptance services
- Grid connection acceptance services
- Cable inspection and acceptance services



## Preface

The Commercial and Industrial Energy Storage Systems (C&I ESS) industry is experiencing rapid growth amid the global energy transition and increasing adoption of renewable energy. Key drivers include enterprise demand for cost reduction, improved grid resilience, carbon neutrality goals, and policy incentives such as tax credits and subsidies. Declining lithium-ion battery costs and innovations in technologies such as solid-state batteries, sodium-ion batteries, and AI-driven energy management systems are enhancing efficiency and affordability. However, challenges persist, including high upfront costs, supply chain uncertainties, safety risks (e.g., thermal runaway), and underdeveloped recycling infrastructure. Advancements in safety standards, circular economic practices, and cross-sector collaboration will be pivotal to ensuring sustainable growth.





## Content

### 1. Safety Concerns

- 1.1 C&I Energy Storage Accidents
- 1.2 Battery Thermal Runaway
- 1.3 Electrical Hazards
- 1.4 Design, Operation and Maintenance Challenges

### 2. Safety Concerns

- 2.1 Cabinet ESS Solutions
- 2.2 Cell Design
- 2.3 Pack Design
- 2.4 System Design
- 2.5 Monitoring Platform

### 3. Sigenergy's Solutions in C&I ESS Industry

- 3.1 Modular ESS Solution
- 3.2 Cell Design
- 3.3 Pack Design
- 3.4 System Design
- 3.5 Cloud Platform

### 4. Critical Safety and Reliability Tests

- 4.1 Cell Level
- 4.2 Module Level
- 4.3 System Level

### 5. Conclusion



## Cell level tests

UL 9540A is a safety standard for ESS. At the cell level, its primary purpose is to evaluate the safety performance of battery cells under **extreme conditions** (e.g., thermal runaway), preventing fire or cascading failures caused by single cell failures, thereby ensuring the overall safety of the ESS. Under the UL 9540A standard, the focus is not so much on evaluating the intrinsic safety of battery cells, but rather on providing guidance for the subsequent design of storage modules and systems through a series of specific test items.

Thermal Runaway  
Trigger Test

Propagation  
Mitigation

Safety Threshold  
Validation

Data Documentation

# CRITICAL SAFETY AND RELIABILITY TESTS



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## Pack level tests

IEC 62619 is an international standard for industrial lithium-ion batteries and battery systems.

At the module level, its primary purpose is to ensure the **comprehensive performance** of battery modules in terms of electrical safety, mechanical reliability and thermal management. It aims to prevent safety incidents (e.g., short circuits, overheating, structural failures) caused by design flaws or operational anomalies and enhance the long-term stability of the system.

**Electrical Safety Tests**

**Mechanical Reliability Tests**

**Thermal Management Tests**



# CRITICAL SAFETY AND RELIABILITY TESTS



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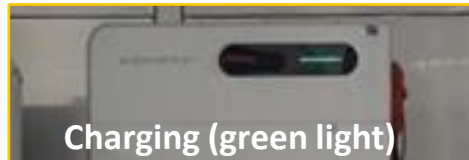
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## System level tests

The IEC 62933-5-2 standard focuses on ensuring the **safety of grid-integrated electrochemical ESS**. The standard specifies comprehensive safety criteria for electrochemical ESS components and systems.

### Vehicle Level Damp Heat, Cyclic (With Frost) Test

After 24h\*10 cycles, the device can operate normally



Charging (green light)



Discharging (blue light)

### 24h water immersion test

After 24 hours, conduct a charge and discharge test on the device. The device shall be able to work normally



Charging (green light)



Discharging (blue light)

## Contact Us



24hrs Hotline : +1 800 967 5352



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## Q&A



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by Blathnaid O'Dea



Most-  
read  
online!

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business models  
for residential  
solar**

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# Battery Business & Development Forum



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JULY 16, 2025

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**Thank you for  
joining today!**